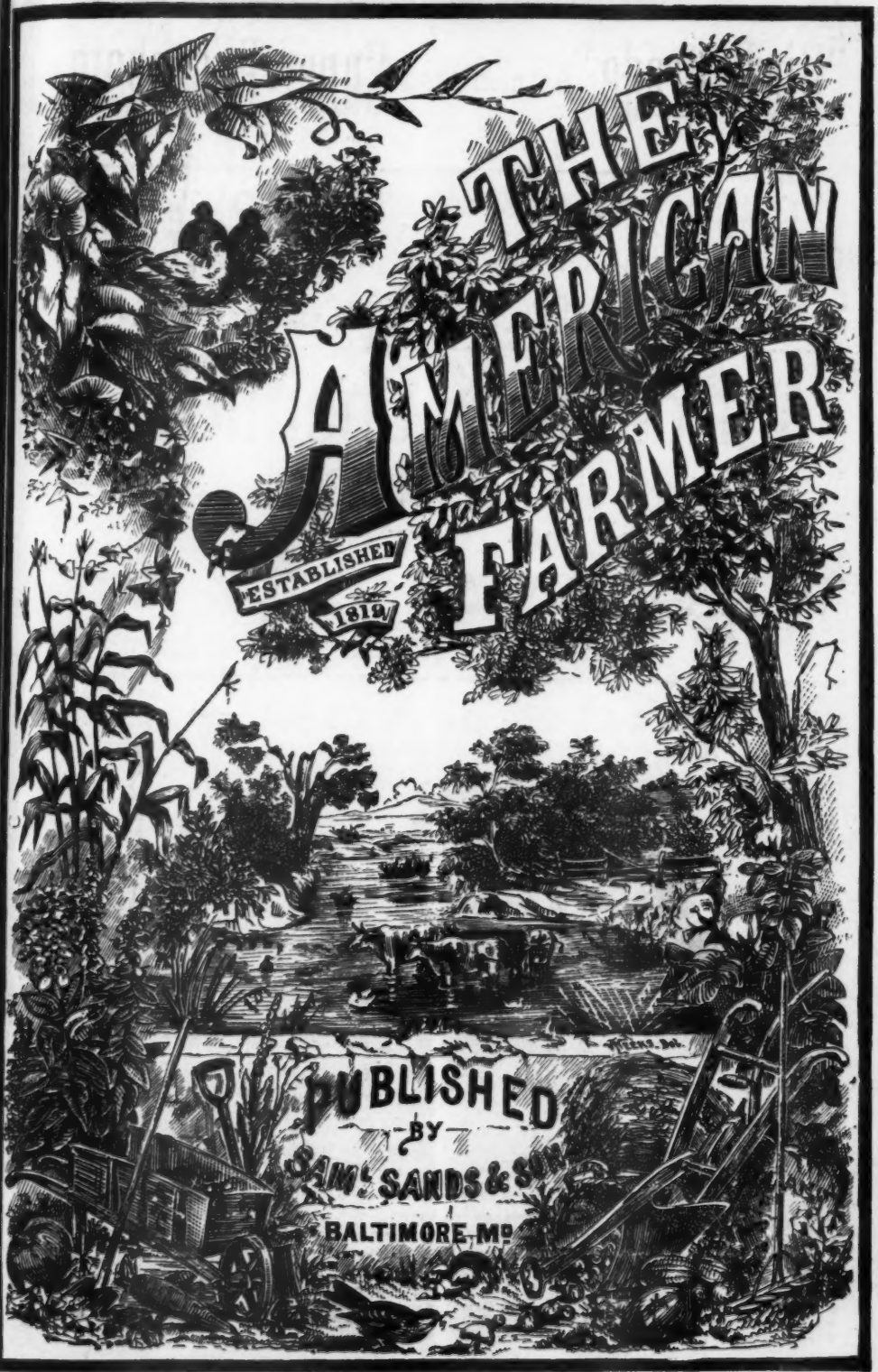

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THE

AMERICAN FARMER.

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PUBLISHED BY SAML. SANDS & SON, BALTIMORE, MD.

VOL. IX.—NO. 9.] SEPTEMBER, 1880. [NEW SERIES.

The Gunpowder Farmers' Club.

Raising Wheat Profitably.

The August meeting was held on the 14th, at John Crowther, Jr.'s. The tour of inspection showed, in some respects, marked improvement in its condition since the club last met here, and the host was duly complimented thereupon.

Half Hour for Questions.

The following question was propounded:

I have a yellow clay limestone field (too rough to farm with profit) that I wish set to grass for pasture for cattle and *sheep*. Some blue-grass is now in the field, and I am stubbing up the field for wheat again, with a view to making a pasture field for some years to come. We have some difficulty in getting clover to take of late years, and also think other grasses better adapted to grazing. Field is in very fair condition, yet not to say rich; would in its natural state produce from ten to twelve and possibly fifteen bushels of wheat if the season was fair. Produced about twelve bushels this year with 150 pounds Pacific phosphate to the acre, and an *extremely dry season*, both *fall and spring*. Please tell me what kinds and when to sow; expect to use about 160 pounds of some standard phosphate on wheat. Sow wheat about 25th September.

Jos. Bosley said he would sow one-third less clover and timothy than was usual, and 1 bushel of orchard grass to the acre,—sowing the two latter in the fall and the clover in the spring.

Ed. Scott—That dressing, in my opinion, would be too heavy.

S. M. Price—Thinks not. He sowed 1 bushel orchard grass and half-peck timothy in the fall and half-peck clover in the spring, and mowed for two years, getting excellent crops. Now the clover and timothy are all gone, but it is prime pasture. Would sow in September and cover with very light harrow. Would recommend a somewhat heavier dressing of super-phosphate than the inquirer proposed using; say 250 pounds.

L. Bacon—On sandy soil, containing some isinglass, what grasses would you sow for permanent pasture,—the usual quantity of fertilizer used being 300 pounds?

Ed. Scott—Would stick to the same mixture.

Geo. Scott (a guest)—Would suggest using pure bone instead of phosphate. He comes from a bone country (Harford county.)

Has any one used Powell's chemicals? and with what results?

No one could give any definite information, though they had been applied in the vicinity, and, as reported, with varying effect.

The club determined to join in the exhibition of farm and garden products at the approaching fair of the Baltimore County Agricultural Society in what is known as the "Wagon Display." This feature was one of the marked incidents of the show of 1879, and promises to attract as much interest this year. Clubs or granges of farmers, or individuals, are invited to show on a wagon, or platform on wheels, collections of all kinds of products; and to the first and second best in size, merit, variety and effective display, moderate prizes are awarded. Much animation is produced by this friendly contest, which, in itself, is a very beautiful incident of an agricultural meeting.

How Can we Secure the Largest Yields of Wheat with Profit?

was the regular question for discussion.

N. R. Miles—The best plan is to put the ground in perfect order and get it as rich as we can. Always advocates a clover sod. Has been backward in using commercial fertilizers, but, like the rest of the club, finds he cannot raise much wheat without them. His dressing is about 250 pounds to the acre. Sows from 15th to 20th of September, plowing early that the ground may become compact,—his success being always greatest when he does so. In fact, thinks early plowing equal to a manuring. Always sows Fultz wheat; it yields better than any other kind. This season his wheat had hardly a fair chance, the greater portion of it having been sown in his orchard—not a favorable condition. Does not plow when the ground breaks up in heavy clods; waits the rain; but a clover sod seldom breaks up lumpy.

S. M. Price—The greatest profit is from corn-ground wheat. Here the drilling is all the expense after applying (where the land is moderately strong) 150 or 200 pounds phosphate to the acre,—there being no labor of plowing. When other ground is to be sown put in a thor-

ough condition; pulverize and pack; sow about September 15th, and apply from 150 to 300 pounds of fertilizer, according to land. This year will sow Fultz, amber and Gipsey amber (the latter a heavy-bearded wheat) in about equal proportions. The Gipsey is not so early as Fultz, and this year is the plumpest grain he has,—Fultz being very much shriveled.

(*q.*) Would you harrow and roll immediately after plowing, or wait till near seeding? (*a.*) Wait till near seeding. If well pulverized would not roll till after sowing. Prefers to roll after seeding with drill. (*q.*) Do you ever use the rubber? (*a.*) Yes; prefer it to pulverize the ground before sowing; it breaks up the clods.

Geo. Scott—In Harford the roller is nearly laid aside in favor of the rubber.

Jno. D. Matthews—In rolling after seeding is land more apt to wash? (*a.*) Think not.

L. Bacon—Where corn-ground is washed wouldn't you use a drag before drilling? (*a.*) Yes.

Jos. Bosley—The ground ought to be put in good order. Favors early plowing. Only wants a little phosphate (150 pounds on his land) and a little manure. Always adds to his phosphate its own weight of plaster. If the ground is dry prefers to roll immediately after seeding, as the wheat and grass-seed come up much quicker. If rain comes don't roll. Sows Red Clawson and amber. (*q.*) Is rolled land more liable to wash? (*a.*) No. (*q.*) Do you apply manure on surface or plow under? (*a.*) Do both. (*q.*) Which gives best results? (*a.*) Top-dressing. We must work according to condition of ground. If it is dry so that we cannot plow we haul the manure out and plow it under afterwards. If we plow early then we must put it on the surface.

Jno. Crowther, Jr.—Pays well to put ground in good order early. If he had light, well-rotted manure, would haul it out and harrow in. Drills the seed about September 20th, with 200 to 250 pounds phosphate to the acre. If the manure is rough, would haul out and leave on surface after the wheat is sown. Have seen greatest benefits from top-dressing wheat. Have plowed manure under and seen no benefit; never top-dressed but what the advantages have been apparent. Sows Fultz.

Jos. B.—Mr. Collings has recently reintroduced the old blue-stem wheat, which deserves a new trial after its disuse for twenty-five years.

D. Gorsuch—It might do to put rough manure on level land, but he would not allow a wheel to go on his rolling land after seeding, fearing washing.

Q. (to Jos. Bosley) Do you think plaster any use on limestone land? (*a.*) Yes, on any dry land. In some years it has been equal to a fertilizer.

D. Gorsuch—Sows his corn-ground in wheat. After the corn is cut off the wheat is drilled in between the shock-rows. About 150 to 200 pounds of a good super-phosphate is applied to the acre, and 1½ bushels grain seeded. The next year the same ground is stubbled up as soon after harvest as possible, and the barn-yard manure put on the plowed ground at the rate of eight four-horse loads to the acre, and harrowed in. Seed from 22d to 25th September, and put on the same quality of fertilizer as the year before. Have almost invariably had a good set of grass from ground so treated.

My present plan is to seed corn-ground entirely, unless a field fails to catch in grass. The ground for corn is plowed in fall; the manure is put on through the winter and early spring on the plowed ground, and harrowed in when time comes to prepare for planting corn. After the corn is cut off, seed to wheat,—sowing timothy in fall and clover in spring. Have had very satisfactory sets of grass from such treatment. Never leave shock-rows to seed to oats. I commence by seeding one row and two half-rows in the standing corn. I afterwards drill around the shocks. Will hereafter make shock-rows wider, and drill the one row after the corn comes off.

Jno. D. Matthews—Agrees with nearly all S. M. Price has said, but excepts to rolling wheat ground after seeding, as he knows on his ground it has a tendency to make the ground wash. Uses plaster with his fertilizer—enough to make it drill well—having never seen any fertilizer it does not improve. Thinks plaster arrests and fixes plant-food in the soil, and enables it to be taken up by plants.

B. McL. Hardesty—Believes in early preparation, but stops plowing and plows later when the ground is lumpy. Harrows and rolls till he gets a good solid seed-bed; applies 200 to 250 lbs. phosphate, but *no* plaster. Mixed plaster with one lot of fertilizer and saw no result, though the compound was used liberally. Has been sowing Fultz, but will hereafter sow amber, which last year gave one-third more, and this year will give double the Fultz. Prefers to sow corn-ground to wheat than to plow down clover sod, which he puts in corn.

Nelson R. Miles—Has seen great benefit from rolling seed-wheat in plaster. Saw effect during all the period of growth, and at harvest the yield of the portion so treated was doubled.

A. C. Scott—In an experiment where two kinds of fertilizers were used—both with and without being mixed with plaster—there was no difference in the wheat, but there was a perceptible difference in favor of the grass where the plaster mixtures were applied.

W. W. Matthews—Corn-ground, in proper order, gives the most profitable crops of wheat, if it has been tended properly. Has the corn cut off, and drills the fertilizer and seed both ways, with half the quantity each time. More time is required, but it gives better cultivation. What you can drill in one day one way can be drilled both ways in about a day and a half. Applies his manure in spring on corn, but what accumulates is put on wheat in fall,—top-dressing giving best results. Last year a heavy rain tore his ground badly. Not wishing to haul over the land, used his roller, with a big platform on it to get to the washes, hauling about two cart-loads. On a hill-side, where there was no wheat growing, sowed some wheat broadcast and top-dressed with long stable manure. Had a splendid crop. Has always seen good returns from top-dressing wheat in winter.

(*q.*) Does the manure do more good as top-dressing after sowing than if used before seeding? (*a.*) Would apply it beforehand, and work

it in if he had it. Sows one and a half bushels per acre more on corn-ground. When it is seeded only one way does not do so well, due probably to its receiving then less fertilizer and less cultivation. Sows Mediterranean mainly. It is generally good, except where it fell; where it was then, it was worth nothing.

The club adjourned, without concluding its discussion, to meet next at Dickinson Gorsuch's.

Deer Creek Farmers' Club.

This association met at the residence of Mr. Wm. Webster, near Churchville, on Saturday, August 21st. The usual inspection of the farm was made by a committee consisting of Messrs. Johns H. Janney, R. John Rogers and Bennett Barnes. They expressed their pleasure at what they saw, and mentioned especially the fine asparagus in the garden, planted in single rows, and worked with a horse. Mr. Webster said it yielded abundantly. They also admired a noble straw rick, 60 feet long, 36 feet wide and 30 feet high. Mr. Webster's Short-horn grade cattle were in fine order and nearly as good as thoroughbred stock. An Alderney cow, nearly thoroughbred, showed by comparison the advantage of the Short-horn over other breeds for meat purposes. An eighteen-months-old steer, bought by Mr. Webster in the neighborhood, and of the same stock as his cattle, was not so large, although six months older. The committee thought this demonstrated the advantage of feeding. Mr. Webster's hay in the barn was pretty and nice, but that stacked out was somewhat damaged. The committee said this showed the advantage of putting hay in a barn or barrack over stacking out.

Best Time and Manner of Using Barn Yard Manure.

Mr. Webster opened the discussion of the question, as above stated. He said that coarse manure should be applied on sod, but with fine it made little difference whether applied to corn or wheat. Some years ago he top-dressed corn with good results. It pays equally as well to put it on fields that are to be put in corn next year. Twenty years ago manure was put on oat stubble and fallow and plowed in for wheat. That practice has been abandoned, because of the tendency of the manure to sink and be lost. If applied to corn and the ground turned up the manure is made available for wheat. As for straw,—which may be regarded as manure,—when at all damaged it should be spread from the machine. Enough should be saved for bedding, but it pays better to spread the surplus.

Johns H. Janney said his plan was to haul out manure on grass the year before it is put in corn. Then you have both sod and manure for the corn. When commercial fertilizers are used they should be put on wheat. In applying manure on grass he commences the first thing in the spring, leaving the long manure until the last. It must be a waste to put manure on frozen ground, but old farmers say differently.

James H. Ball said he had been brought up to think that manure must be plowed under as soon as spread, in order to prevent the evaporation of the ammonia. His views had changed. The right place for it is on grass, at the time the grass is active and ready to take it up. Prefers putting it on for corn two years ahead. By producing better sod, you prepare better for corn and for the wheat which follows it. Straw can be spread to advantage from the thresher, but he was of the opinion that if the straw were used in the barn-yard as an absorbent it would make better manure. Manure loses in bulk, but not in value. It must be a loss to put it on frozen ground.

Thos. A. Hays spreads the bulk of his manure on grass land during the growing season of spring, summer and fall. Would not hesitate to spread it also in winter if the field was level and would not cut up by hauling. If the ground was frozen, would prefer it in the barn-yard. In spreading in advance for corn, he never saw any difference between one and two years. The best season to spread it is August. It is a good thing to spread straw. He would not spread coarse manure on a mowing field, but rather on a field he intended to break next spring. He would not advise holding manure to spread at any particular season, except during winter.

A. M. Fulford prefers to spread manure on permanent pasture or to touch up the poorest spots in wheat fields. That insures it being near the surface and where there is less doubt of it soaking down below the reach of the roots. He had seen it applied in the summer time, hauled directly from the stables, with good results. He likes to treat manure in the barn-yard with plaster and by turning it over until it becomes fine. Then it will not be in the way on mowing fields. Straw produces good effects if not spread too thickly. It acts more as a mulch than from any virtue in itself. It pays better, however, to use it as bedding.

Hosea Barnes believes in putting out manure as fast as made, except when the ground is frozen. He hauls it out during winter and spring, on grass, and plows it down for corn.—In the fall he plows the same field deeper, and thereby brings the manure near the surface for wheat. He could see no difference in the corn between the manure hauled out in winter and in spring.

W. D. Lee's plan is to put it out on grass for wheat through the winter or spring, whether the ground is frozen or not.

Geo. R. Glasgow prefers to put it out on sod early in the spring, whether the grass is started or not. Lets it stand a year and plows the following year for corn. Even through the winter he hauls out upon a sod field and spreads it, whether the ground is frozen or not. Feeds his rough fodder early, and finds that the manure is well cut up by the cattle and by the use of plaster by the first of April. He uses a great deal of straw in his barn-yard, and spreads the surplus over the fields.

John H. Herbert, of Howard county, said that in his experience manure ought not to be hauled out between the 1st of June and 1st of September. He differed with some of the members about applying it exclusively to grass. It can be used to great advantage for corn, and he had seen satisfactory results from plowing it

under for wheat. He did not think corn land could be plowed too deeply, and said he had found corn roots three feet below the surface, as large as those at the surface. Manure, he thought, does not reach much below the place where you put it. In top-dressing grass lands he would choose September, October and November, in which to spread all that was not hauled out before the 1st of June. A convenient way of applying straw undecomposed is while threshing. Have two teams and keep one under the thresher all the time. It should be hauled out and put in small piles, at regular distances, so as to be spread regularly. Mr. Herbert alluded to the advantage of cutting down all the weeds and other summer growth on wheat stubble. Let them remain on the ground as a mulch for the young grass. All hilly land should be top-dressed, at the time of seeding, with straw, especially the valleys and the slopes leading to them. It will prevent the soil from washing and the fertilizers from wasting. If much is applied it will produce rust in the wheat; but he had never been able to determine whether it was any injury to the development of the wheat or not.

R. John Rogers was also in favor of top-dressing grass lands, and his experience led him to say it did not make a great deal of difference when it is applied, provided it be not hauled out on hard frozen ground. There is too much risk of a sudden thaw or heavy rains carrying much of it off. He had hauled manure out on thin places when plowing for corn, and could see little benefit from it, but when hauled out three years ahead the benefit is marked. All straw beyond that needed for bedding and for making the barn-yard comfortable for stock should be hauled out and spread on grass.

Geo. J. Finney said it was decidedly the best way to top-dress grass. He would prefer hauling it out to the field in piles as fast as made, rather than leaving it in the yard, unless under cover. There is more or less waste in the yard. Liquid manure would be better running over the field than oozing out of the barn-yard. His rule is to apply manure a year before he plows for corn, and prefers it to bone. He can raise more wheat to the acre by hauling out manure and plowing it under. But in the aggregate has better results from applying it on grass.

John Moores puts manure on his grazing fields for corn, and begins to manure two years ahead. He puts the field in corn two years in succession and then in wheat also two years in succession. He also uses bone for corn and for wheat. He applies manure at any time. If in winter, when the ground is frozen, he selects the level portions. Stable manure is hauled out as soon as made, and that from the barn-yard after it is somewhat decomposed. He could seldom see any advantage from hauling out one day and plowing the next, and differed with Mr. Herbert in regard to spreading manure in August. He had never seen manure do better than when spread at that time.

Col. E. H. Webster agreed with the most of the members that it pays better to spread it on grass. It don't make much difference as to the time; but when the ground is frozen it should not be put on hill-sides, on account of the danger of the soluble portions being carried off during a thaw. He had noticed the difference of one-third in a corn crop, from manure hauled out and spread on grass a year before, over that plowed in in the spring. The latter did not help the corn, but there was no difference in subsequent crops. He did not agree with Mr. Herbert as to applying manure in summer, but regarded July, August and September as good as any other time.

Wm. T. Sawyer's experience induced him to favor top-dressing on grass lands which he expects to plow in a year or two. He likes to spread it as it is hauled out, as it can then be spread more evenly than when allowed to harden by remaining in piles. He hauls it out all the year, and thought there is a waste in letting it lie. In hauling it out on frozen ground he would put in on the higher portions of the field. Bone dust acts better where land has been manured.

Wm. Munnikhuysen's practice is to throw the manure from the stable into a cart and spread at once. When the ground is frozen he selects a spot where it cannot wash away. The amount of labor saved in this way will more than compensate for any loss by washing away. Always has a compost pile, composed of ashes, slops, &c., and spreads that on thin places in his wheat field. Manure would pay as well as a top-dressing for wheat as any other way, if it could be kept without loss.

Geo. E. Silver said he used barn-yard manure as a top-dressing for grass—sometimes ahead of corn and sometimes for permanent pastures. He had plowed down some manure for tobacco and changing his mind planted corn instead. The corn is one-third better than where no manure was applied. Barn-yard manure will do good wherever applied. Even rough stuff, if not a great fertilizer, is of advantage in shading the land.

R. Harris Archer thought it a pretty sight to see a team hauling out manure. The best manner of applying depends upon circumstances. If you have manure in your barn-yard and no money to buy fertilizers, you had better haul out the manure and plow it under for corn. If you can buy fertilizers it would be better to save the manure for grass. Time and money are both wasted in hauling out manure in winter, on account of the short days. You had better wait until the first of April and make a business of hauling it out. All the straw to be spared should be spread from the machine, and if straw is kept under cover there will be a great deal to spare. He was opposed to the common practice of always spreading the barn-yard manure near the barn and applying the commercial fertilizers to distant fields. The practice should be reversed, as all land needs some barn-yard manure.

Wm. F. Hays said the best results are seen from spreading manure in April or May. He always wants it on grass a couple of years, and don't care if it lays twenty. He likes straw, and if he has not enough to spread on grass will buy it. He also believes in mowing pastures over and letting the weeds act as a mulch and as a fertilizer to some extent.

James Lee, the president, said his custom was to haul out manure directly from the stables, whether the ground is frozen or not. He goes regularly across the field, and prefers to have it on a year or two ahead for corn. He also approved of Mr. Herbert's suggestion in relation to cutting rag weeds on stubble, but that work is generally put off until the weeds get too hard.

Mr. Herbert explained more fully the advantages of cutting the summer growth, and said he was not opposed to top-dressing grass lands, but opposed to being confined exclusively to that.

The club adjourned to meet at the residence of John Moores, on the 18th of September. Subject: Variety and quantity of wheat sown per acre; fertilizers used and results of last year's crop.—*Ægis.*

Mystery of Fertilization.

For the last forty years there has been no article known to agriculturists which has so largely claimed the attention of the man of science, or indirectly that of the farmer, as has nitrogen. Theory and practice alike have confirmed the opinion that there is no more important element, either in the vegetable or animal kingdom, than this, and yet how, or in what manner, or in what kind of combinations, it enters into the vegetable kingdom, we know no more than we did when the inquiry first began. We can discourse eloquently about the fertilizing qualities of Peruvian guano, we can tell how its fertilizing qualities depend upon the amount of nitrogen it contains; but in what condition that nitrogen enters into the plants we are yet in the dark. We know that clover is a wonderful fertilizer, that it leaves a large amount of nitrogen in the soil, in its roots and scattered leaves; but whether it did not accumulate the whole from the soil and present it to us in new compounds, or, through its leaves, presenting substances to the nitrogen in the atmosphere which would combine with it so that it could be carried to the soil, and be made of advantage to other vegetation, we are to-day as ignorant as we were a hundred years ago. But this we do know, that one kind of vegetation does furnish and prepare food for another kind, and in this way we find the practical value of alternating crops.

Mr. Lawes, in 1873, experimented with barley and clover. He sowed half a field with barley without manure, which had been kept in that crop the three previous years, and fertilized with artificial manures; the other half had been sown to clover the year previous. The yield of barley was 31 bushels to the acre, and clover three tons 48 pounds per acre. The next year the whole field was sown to barley without manure. The half previously in barley gave 32¾ bushels; the other half after clover gave 58 bushels per acre. Thus we see that after taking off a very valuable crop of clover he had increased the fertility of the soil to almost double that of the half which had been in barley. Now, without entering into any speculative theories of where this amount of fertilizing material came from, we have the facts from which we cannot ignore that by the aid of clover the crop of barley was vastly increased. Nor can we without presumption say that this fertility was the result of nitrogen which the clover collected any more than it was the result of phosphoric acid and potash, which it had also collected,—for unless there were already accumulated in the soil these two principles equivalent to the requisitions of that amount of barley, it would have been in vain that the soil obtained through the clover the necessary amount of nitrogen. Mr. Geddes, of Onondaga, N. Y., fertilizes to a great extent with clover. His best market crop is wheat; his fertilizer for clover is gypsum, and his clover furnishes fertility for his wheat.

But Mr. Harris contends that by fallowing, nitrogen and minerals may be liberated in a year which would produce crops from which as much profit could be obtained as from the use of clover and cropping every year. This is a nice question to decide. That fallowing a piece of land, allowing the weeds a good start, then plowing them under and plowing two or three times during the summer will develop a wonderful amount of fertility, there is no doubt. This was a practice of almost general application before the advent of special fertilizers and before anything was known of the theories of either nitrogen or minerals as fertilizers. Jethro Tull's system was that all the fertilization necessary in soils, without even the use of barn-yard manure, was in the proper manner of working the soil. But all our experiments are for the present season uncertain and unsatisfactory. We have sown patches with clover in order to test its fertilizing powers, also with a number of different fertilizers; but the weather, which is beyond the control of man, has dried the clover. Neither have we had rain enough to render soluble the fertilizers we have used; but we hope that they remain in the ground waiting for that rain which shall render them available. We used to be told that dry seasons had their advantages as well as disadvantages, and one was that a wet season carried the salts down into the ground, and a dry season brought them back to the surface; that as a result we had heavy crops succeeding a season of drought.

To this there may be two or three solutions. In the first place, during the season of the growth of plants, we seldom have rainfall sufficient to carry the salts below the reach of the plants, so that the apprehensions we had of fertilizing matter being washed away were needless; and the fact that in a very dry season the crops were so light they did not use the fertilizers we had applied to the soil, and the heavy crops which succeeded a dry season were on account of light crops which had preceded it. Although we do not entirely discard the idea of salts ascending during a dry season, yet we believe that they are not exhausted, but that the intense light and heat, together with the atmosphere which is let into the ground, will prepare considerable plant food; and if the cultivators and hoes are used as much as they should be in neutralizing the effects of the drought, they will act among potatoes and corn equal to a summer fallow. Dry seasons test our confidence in mother earth. Let us patiently wait for and closely observe results.—*American Cultivator.*

Gypsum in Agriculture—Composition, Application and Effects.

The Hon. Geo. Geddes, in a paper in the *New York Tribune*, thus treats this subject:

Gypsum, commonly called plaster, is composed of 22 equivalents of water, 32 of lime, and 46 of sulphuric acid. It is soluble in 500 times its weight of water, or about 1,000 times its bulk, its specific gravity varying from 1.87 to 2.31. It is used for making cement, when there is some carbonate of lime combined with the substances named. Calcination (which is simply driving off the water by heat) being thoroughly performed, the powdered plaster is wet and quickly made into the desired form, when it rapidly becomes hard. About 17 per cent. of carbonate of lime is found in the plaster quarried near the city which gives it its name (Paris) in France. For agricultural purposes gypsum should consist of only the lime, water and sulphuric acid,—in which case it will be white. But it is not often found perfectly pure. Oxide of iron gives it various shades of color. Carbonate of lime will be shown by applying acids, when a slight effervescence follows. Clay or other earthy matter is often mixed with gypsum rock as quarried; plainly to be seen before grinding. We have in New York State extensive beds of gypsum rock that is of excellent quality for agricultural purposes. It is quarried from the beds, and usually placed under sheds to dry before grinding. Under these sheds the rock can be examined, and when found not to effervesce on the application of a strong acid, and to be crystaline all through, light, and easily scratched with the thumb-nail, and no earthy matter combined, the color a soft gray, it will make a first-rate fertilizer if ground fine.

When should gypsum be applied to land, how, and in what quantity? *When*—On meadows, pastures and winter wheat, early in spring, as soon as the ground is settled. On barley and oats and potatoes when fairly up. On young clover early in spring or immediately after the crop of grain grown with the clover is harvested. On corn soon as it is fairly above ground. *How*—A broadcast sowing machine, drawn by two horses, on which the driver rides, sowing a strip eight feet wide, can be purchased for $35. Such a machine will do the work much better than it can be by casting from the hand, unless the crop be in hills. *Quantity*—On land that is to be plowed soon, one bushel to the acre is sufficient, and as the gypsum is so slow in dissolving, it is proper to take into account the time that will be given before the plow will mix it with the earth and measurably end its usefulness. On permanent meadows and pastures, from two to three bushels are often sown on an acre at one application. The cost of the gypsum will be taken into consideration when deciding on the quantity to be used. Where it is costly, I have heard of good results from the use of one peck on an acre of corn, a very little being given to each hill.

What is its value to the farmer? That eminent farmer, John Johnston, now nearly ninety years of age, crowned with the respect and love of all that know him, and surrounded by a great circle of friends at his home in Geneva, N. Y., has said more than once that he would use gypsum on his farm if it should cost him $40 per ton. Some very carefully-conducted experiments made at the Michigan Agricultural College showed that one bushel of gypsum sown on one acre of newly-seeded clover and timothy produced an increased yield of a ton of hay, in the two and a half years following; it having been mowed five times during that period. Calling a ton equal to twenty-five measured bushels, and the gain to give $5 for this one bushel, we have $125 as the net gain from the use of a ton. Let prudent men cut down these figures till they think they are within proper limits, and then make some trials of this wonderful fertilizer. How does this mineral produce such wonderful results? No man can tell. The scientific man has taken it apart and determined exactly what it is; but why it produces such wonderful effects he has no more knowledge than any of us—and all he or we know on this point is what we have learned by trying experiments, marking results, and comparing notes with each other. The discovery of its power to make crops grow was an accident, and that discovery was made very recently.

There are some very strange things about gypsum of which we farmers have not been able to learn much. In some places no good results can be seen from its use. On drained, mucky swamp the effect is not discernible by the eye, and in some years, though rarely, farmers who are constant users of it say they see no good from it on any land. Farmers generally believe its great use is to mitigate the bad effects of a drought. After barley and oats have come up, and there is little or no rain, they sow their gypsum, and sometimes the effect is very marked. But if the season promises to be a wet one they do not often sow it on these crops. Late experiments appear to indicate that the greatest effect of gypsum is to increase the growth of stalks and leaves, rather than of grain. The vigorous growth of stalks and leaves is necessary to the production of the grain, and thus, it is supposed, the injurious effect of too dry weather on a young and feeble plant is mitigated by applying something to stimulate its growth at this critical period. Let every farmer make trials to learn whether gypsum can be profitably used by him, and under what circumstances. One bushel properly used will tell a careful inquirer much that will be profitable to know. Leave some strips on which no fertilizer is applied, that comparison may be made. Unless this is done, it will not be possible to form any just conclusion as to effects; and farmers who do not follow up such tests are very apt to have no decided opinions in regard to the value of gypsum to themselves, and entertain very erroneous opinions not only in regard to its value, but as to the best times and methods of application.

Muck is a good absorbent, and contains nitrogen and some other plant-food. A supply can be conveniently obtained in a dry season.

Experiments in Seeding Wheat.

Messrs. Editors American Farmer:

In accordance with promise, I note down my experience in sowing wheat for the past four years. Hay has been my principal crop. When we fail to get over a ton to the acre, or the timothy is superseded by pink, June or blue-grass, we put in corn; follow with oats; then seed to wheat and reset to timothy, using manure or fertilizers. Top-dress grass with manure from harvest till the grass commences to grow in the spring.

In 1876, not having oat-stubble and having twenty acres of meadow that had pretty well run to June and blue-grass, I concluded I would plow and sow in wheat and reset to timothy. Commenced in August and finished in September. Harrowed until I got it in pretty good condition. Drilled in Fultz wheat, 9th, 10th and 11th October, intending to sow 1½ bushels per acre, but sowed 33½ bushels on 26½ acres. One ton Moro Phillips' phosphate, one ton Horner's phosphate and two sacks Peruvian guano, mixed together, yielded (thresher's measure) 511 bushels,—about 25 bushels per acre or 15 per bushel sown.

Hearing Mr. Shipley tell of his mistake and its results, I concluded in 1877 to try one bushel per acre. Sowed last of September 10 acres of oat-stubble; 10 bushels Clawson wheat; fertilized with Zell's super-phosphate, 300 pounds to the acre. On finishing lot found about half bushel left in drill, which I cross-drilled at one end of the field, making two bushels to the acre as far as it went. I looked at it frequently from the time it came up until harvest. The plants in the thin sowing were much stronger and more stalks to plant. Harvested with Champion self-rake reaper. At two points of fair average growth, where two bushels were sown, I took two sheaves and put them in a sack, and also two where one bushel, and put them in a sack; when they were perfectly dry, weighed them separately in the straw. The two-bushel sowing weighed 2½ pounds more than the one. I threshed and cleaned them carefully, and each parcel of clean grain weighed precisely the same,—the only gain in the two-bushel sowing being in the straw. The yield of the 10 acres was 190 bushels,—19 bushels per bushel sown.

The same year I sowed 15th October 10 acres of timothy sod just plowed, and harrowed, 4½ pecks per acre; fertilized same as the other. Harvested 198 bushels smooth-head amber 1878. Plowed in August 19 acres of thin sapling clover fallow which had been mowed in July. Harrowed and drilled one bushel to acre, 9th, 10th and 11th October; 200 pounds Zell's super-phosphate to acre; yield 379 bushels,—nearly twenty bushels to one sown. In 1879 plowed stubble in same field in August. Harrowed and sowed same 19 acres on 6th and 7th October, with 17 bushels Fultz wheat. Two of the tubes of the drill only sowed half what the others did, making less than one bushel to acre. Fertilized with Maryland Grange Agency's Favorite; part of field 230 pounds and part 300 per acre. Harvested and threshed in June 449 bushels, thresher's measure; 26 and a fraction to bushel sown, or 25 and a fraction per acre.

I have given you the results of the ordinary mode of putting in wheat, in contrast with Mr. Shipley's more thorough culture, and am satisfied that a less quantity (if sowed reasonably earlier than we have been accustomed to sow) will be sufficient.

In confirmation of the conclusion I have reached, one of my neighbors, a mechanic, in 1878 sowed one bushel on half acre. His wheat looked so much better than mine (being the Fultz) that I bought it in the straw for seed, supposing that it would yield 15 or 20 bushels. Some that looked at it estimated 25. It threshed 11 bushels; the grain very small. Another adjoining me, same kind of soil, sowed 1 bushel on ¾ acre; apparently as strong growth; threshed 21½ bushels. GERARD EMMART.

Asbestos Ridge, Baltimore Co., Md., Aug. 20, 1880.

Thin Seeding of Wheat.

Messrs. Editors American Farmer:

It may appear like supererogation in me to say anything at this time in corroboration of what C. H. Shipley writes about "Thin Seeding of Wheat;" but his experience so nearly coincides with views that I have entertained and freely expressed for twenty-five years, I feel willing to add my testimony to what he has stated, as I am confident a very important point in wheat raising is thin seeding. More than twenty years ago, when drills came into use here, one of the strongest arguments in their favor was that we could save half a bushel of wheat per acre (it was customary to sow two bushels per acre by hand) by using the drill.

I could see no good reason why a less quantity would not do sown broadcast; consequently I sowed a field by way of experiment, using one bushel and four quarts per acre, at the same time doubling the quantity sowed on one land. The yield was twenty-six bushels per acre on the field; I did not keep the one land separate, but the difference was very perceptible. That sowed at the rate of over two bushels per acre was much thicker than the part sowed with one and an eighth bushels, and the heads were not much more than half as long. So satisfied was I with this trial that I have continued to sow one and an eigthth bushels per acre for the last twenty years, and have raised, I think, quite as good crops as most of my neighbors. It is rather a singular coincidence that from a like cause and the same year (1876) C. H. Shipley and myself should both sow three pecks of wheat per acre instead of five. Brother S. P. Thomas had just purchased a drill, and from some cause some of the gearing gave way, and in renewing it one of the cogs was misplaced, causing the drill to sow three pecks per acre instead of five as intended; and, although he reported the fact to me when I got the drill, I had so much confidence in the result of thin sowing I proceeded to sow a twelve-acre field. The field had been in corn that year, and next spring (1877) no one would have supposed there had been wheat sown there, it made so little show. But at harvest it stood pretty thick, and the telling part

was in the long and well-filled heads. It exceeded C. H. S.'s crop by two bushels, making thirty-eight bushels on the field per acre.

I am glad C. H. S. is still engaged in his experiments in thin seeding. I can see no reason why wheat will not produce better when given room to develop, as well as corn. We all admit that corn will yield more grain when planted than when it is sown.

There is another question in farming in which I differ from most farmers. I sow four quarts of clover seed per acre and the same of timothy seed, and advocate putting on the additional amount in fertilizer; and I am satisfied that I get on an average as good a set of grass and about as good crops of hay as my neighbors.

WM. JNO. THOMAS.

Sandy Spring, Md., 8 mo., 19, 1880.

Changing Seed.

There seems to be no idea more thoroughly believed in by experienced farmers than that it is a great benefit to change seed occasionally; yet it is by no means an undisputed fact, and we know of some intelligent men—indeed some who stand among the most thoroughly educated and experienced in the farming business—who contend that this supposed necessity for a change of seed is entirely imaginary.

We confess to a sympathy with those who think an occasional change necessary; and yet we have so often found in the light of a new and careful experience, that even practices very time-honored come to be abandoned, that we are always to reconsider any opinion, no matter how strongly held. The change is thought to be particularly useful in potatoes, and a change of seed in this article is generally made as regularly as crops are rotated from year to year. But one of our friends is very emphatic in regard to the potato, that no change of seed is required. He has had one potato—that is one variety of potato—year after year for ten years, and they are as good as ever. In his opinion it is not that a variety is sick of the ground that it sometimes gives out; but that it is diseased from ordinary unhealthy causes. It is simply a change of an unhealthy stock for a healthy one, and not a wearing out of variety.

The matter has a practical importance, as people often put themselves to a great deal of trouble and expense in order to make a change in the seed. If the suggestion made be in the line of a true reason for the supposed benefits of a change, proper care in saving healthy seed will be as good as a change. But we must be satisfied that the suggestion is correct and that the truth lies in the few experiments made. There are two sides, and sometimes several sides, to all questions of this nature. We have personal knowledge of trials made by farmers forty and fifty years ago, when the varieties of potatoes generally cultivated by our best farmers were comparatively few to what they are now, and whose crops, in using the same kind of seed year after year, became poorer and poorer, though there was no apparent disease, and the only remedy they had was a change of seed. Sometimes it was the same variety obtained several hundred miles away—from the State of Maine, for instance—and the yield was double, the potato larger and quality better.—*Germantown Telegraph.*

Our French Letter

A Golden Celebration of an Agricultural Educator.

Messrs. Editors American Farmer:

Silver and golden weddings are the order of the day; but rarely has a jubilee been better merited or more fittingly honored than that just held at Nozay, in the department of the Lower Loire, to celebrate the fiftieth anniversary of the founder of the agricultural school of Grand-Jouan: M. Jules Rieffel. Antæus renewed his vigor by touching mother earth. Men of energy and of progress fortify their determination and confidence when reading the biography of such a veteran as M. Rieffel, who has worked his way to success, and who never recognized such a word as fail. His life is a battle and a march; it is more: it is a brilliant example of what individual effort, united to scientific skill, can accomplish, not only for self, but for the amelioration of immediate inhabitants and mankind at large. M. Rieffel has not only made two blades of grass grow where only one grew before, but he has made one blade grow where none ever existed. He was trained in the school of Mathieu de Domsdale, who established the Reville college, and is, with Auguste Bella, the founder of the Grignon agronomic institution,—the two names most illustrious in the history of French agriculture. The latter has now another bead to add to the roll of fame. The district of Nozay is a kind of sandy moor or *landes*, reputed, as all such districts are in Britany, that they "shall remain during eternity unfertile, as eternity had created them." M. Rieffel demurred to the axiom. In 1830 he arrived; may be said to have pitched his tent where all was barren from Dan to Beersheba; *now*, all blossoms like the rose. Formerly conquerors planted their swords in an enemy's country to mark taking possession. M. Rieffel simply employed that instrument of peace—the plough; he reclaimed 1,240 acres of his own holding, and led to the reclamation of 20,000 by the adoption of his example. He was the true founder of agricultural schools; he had two classes of pupils—boarders and apprentices,—and both trained to practical duties. It was his experience and ideas which served as the basis in 1845 for the present scheme of agricultural instruction in France, viz: an agronomic university, agricultural colleges and national or farm schools. He did more: he established local farming societies, a breeding stud, and contributed to extend his sphere of usefulness by periodical writings, which have become not only celebrated but an authority. Breaking up the heather by means of the best plows, and cultivating Swedish turnips, wheat soon replaced rye, and people thus became enabled to eat wheaten bread. Man naturally commenced by bettering himself; next followed the cultivation of forage plants; cabbages for cows and potatoes for pigs; beet succeeded;

next Jerusalem artichokes; and last, clover and vetches. When M. Rieffel commenced there were no roads; consequently no vehicles; men, women and children rode on horseback; and the horse was a wiry animal, living on heath as asses on thistles, and valued at 50 fr. Roads in time appeared; then carts; and, as forage improved, superior horses. The founding of a breeding stud aided the progress. To-day, cows, oxen and calves represent four times their value as compared with 1830; a sheep which cost 5 fr. then represents 20 fr. now. At present the establishment has buildings erected at a cost of 200,000 fr, partly from government aid. The live-stock is magnificent. During fifty years nearly 1,100 pupils have been trained; reside in every part of the world, and many fill eminent positions. Well, they were exactly his pupils who organized the fête to present their aged but hale professor with a service of plate, and the most illustrious in the French agricultural world felt it a duty to be present. The government was represented by the chief inspector of agricultural schools, and what was not a little curious there were "pupils" present aged 70, and their sons and grandsons,—three generations,—all graduates of the same, the Grand-Jouan College.

On Feeding Animals.

Apart from the nutritive qualities of food, much difference of opinion still exists as to the manner in which the food ought to be given: whether sliced, chopped, bruised or crushed, or prepared by cooking, steeping or fermentation. As many practices, as many opinions. M. Jean Kiener is an authority—scientific as well as practical—on these subjects, and for twelve years has studied and experimented on them. He does not like cut hay for horses; true, they will in this state consume their feed of hay in one-half the time; but if their excrements be examined, the particles of hay will be found in their natural length and thickness, unaffected by the process of digestion.. The mastication and the salivation of the food were incomplete; and the horse in addition will absorb a great quantity of water, to make good that furnished in lesser volume, pending a deglutition of double rapidity. Horses, then, that have sufficient time for their feed, ought to receive unchopped hay. Weight for weight, bruised are held by M. Kiener to be less nutritious than whole oats, while the latter give greater resisting power for work. Further, horses accustomed to bruised grain, if afterwards put on whole oats, bolt these very extensively, owing to an absence of activity in the stomach, which has become, as it were, lazy from having been saved trouble; except in the case of old or young teething animals, bruised oats are objectionable. Black oats are considered by carters as preferable to white, but this is rather a question of richness of soil, manure, season and culture. Chaff is occasionally mixed with the oats to induce slower and more perfect mastication. Bran ought merely to be damped, never given as a slop, as it in such a state frequently produces diarrhœa in horses. Excepting potatoes, nothing is gained by cooking roots. Barley makes horses less spirited, and begets transpiration; but malt produces no inconvenience. Beans at the rate of one or one and a half quarts daily, are excellent; but no diet equals oats in imparting firmness of flesh and vigor. As a rule, the less water given the better. The same authority maintains, that the continued feeding of cows on macerated or fermented food will, in the long run, produce phthisis. While cows on a wash diet yield a large but poor quantity of milk, their flesh is but little nutritive, and difficult to preserve. Good hay and a pound of linseed cake per day would alter all this. The change from one description of diet to another ought never to be sudden; and, when a new food is to be employed, a handful of the aliment ought to be adroitly introduced into the animal's mouth, keeping the latter for an instant closed. Calves ought to be nourished exclusively on milk—undiluted—till three months old; replacing each quart of milk reduced per week by linseed cake, about one ounce at the commencement. Never dilute the milk; give it pure; and when the calf desires to drink water, allow it to do so. Pigs, also, receive their food too sloppy; better give the water separately, and thus enable the food to be fully assimilated. In the case of fowls, nearly all the maladies to which they are subject may be traced to the absence of fresh and pure water in the poultry yard.

The Phylloxera, &c.

A stronger shade of hope characterizes the history of the phylloxera. The Paris and Mediterranean Railway Company, over whose line so much of the wine of France is carried, has since 1876 conducted a series of experiments respecting the destruction of the bug by means of sulphuret of carbon. The report of the company's experiments during the last year has just appeared, and for the first time since the disease set in creates a feeling of confidence. Vineyard proprietors evidently feel the importance of sulphuret of carbon, as the use of that salt at a cost of 60 fr. per acre, which in 1876 was 1,000 barrels of two cwts. each, rose to 6,253 in 1879. M. Mares has employed sulpho-carbonate of potassium at the rate of 120 pounds, dissolved in 57 cubic yards of water, per acre; the waterings to be executed in April and the close of July respectively. The new point brought out by M. Mares' experiments is: the necessity of treating the whole surface of the vineyard; otherwise the insects only move on to a part of the soil not poisoned, and there concentrate their attacks more destructively.

The French government has authorized the cultivation of tobacco in the South as an experiment. The prospects of the beet, and of all crops, are good. F. C.

Paris, July 15, 1880.

Feeding Stock.

The economic feeding of stock is one of the most important problems of farmers; it is the base of his profits. An agriculturist who fattens 450 head of cattle in a year, like M. de Crombecque, becomes an authority on matters of dietary. His horses work ten hours a day, and thus demand an alimentation different from a racer, that runs a few miles in as many minutes; the base of his feeds is: chopped hay and straw, and bruised grains. The hay and straw are cut together in lengths of one-third of an inch;

longer would be objectionable; shorter they would discourage mastication. The cut forage is riddled, which frees it of 5 to 10 per cent. of dust. A man takes a quantity of the stuff sufficient for a day, spreads it along a planked floor, and covered with zinc; a bed of the chaff 8 inches thick is made, on the surface of which is spread the bruised rations of grains; the mass is then sprinkled with water, slightly salted, and turned over from time to time with a wooden shovel; when well mixed the food descends by a trap into a zinc reservoir, where it remains, three hours in summer and ten in winter, till served to the horses, who eat it with avidity. If oats be dear, they are partly replaced by maize, buckwheat or barley. The cost of such ration daily is 33 sous. M. de Crombec purchases lean stock at 8 sous per pound, live weight, and sells them fatted at a fraction over 10 sous; they remain from 110 to 120 days in the shed, and during this period put up increased flesh to the weight of 3 cwts. per head. He does not keep sheep; he finds their manure bad for beet, producing large but bad quality of roots. The cattle are fattened on beet pulp, cut hay and straw, and a mixture of oil-cakes, which costs per day for each animal 29 sous. The feed is prepared similarly as for the horses, save that the forage is chopped into lengths of a good inch, so as to give the beast a grip of the food in masticating slowly, and to induce quiet rumination; the cake is not too finely crushed, as such induces rapid eating, resulting in the animals being blown. The horses, as a rule, are closely clipped, after which they are washed in soap and water; the posterns are not shorn, in order to avoid cracks, nor the shoulders, so as to prevent collar wounds. The cattle are also clipped when their hair is shaggy, and three times a week they are curried with old card racks.

The Cab Company of Paris has 13,000 horses, and since seven years has been experimenting under the direction of the eminent chemists, Messrs. Grandeau and Leclerc, how to economically nourish them without detriment to their health and working powers. The problem has been satisfactorily solved, by partly substituting maize, beans and oil-cake, for oats, and which has resulted in a saving of over one million francs per annum. The eminent chemists, as they have frequently pointed out, denounce the plan of giving oat rations by measure, instead of by weight; also, that the heaviness and shining character of oats are no indications of their nutritive value; the latter can only be determined by analysis. The digestive powers of the animals have been sensibly improved by freeing all grains beforehand from impurities.

Contagious Diseases in Live Stock.

M. Pasteur and his colleagues have made another important step in advance, respecting the nature of that terrible contagious disease *charbon*, which carries off so many animals yearly, and not a few human beings. M. Pasteur had demonstrated that in the case of hen cholera, the disease was caused by animalcules, but that poultry, if inoculated, could be made proof against it. He now shows that these animalcules are due to worms bringing them up from the soil, where a beast, dead of the malady, has been interred; hence, such ought never to be buried in cultivated soils or pasture lands. Respecting hen cholera, M. Beaucamp, of Etreux, states that in his neighborhood the disease has been very prevalent since ten years, and with fatal results; his poultry yard has invariably escaped, because he has supplied his fowls with plenty of air, light, and fresh water—three essentials ignored by his neighbors, who conclude darkness, filth, (cleaning cots only once a year,) confined space, best calculated to make hens lay—and unfortunately die also.

Use of Gypsum.

Baron Schell, of Austria, has confirmed the experiments conducted at the farm-school of Haubaudieres, that gypsum applied to lucern when the aftermath has been cut, or during winter, tells most effectually on the improved hay crops the following season; better still, the application of a small dose of gypsum after each cutting of lucern, &c., is very marked.

Associated Farming.

A very important company has been founded, and which promises to have serious results on the agriculture of France, and may lead to an application of the principle advantageously elsewhere. The company prepares manure, having night-soil for base, mixed with mineral or bone phosphates, ammoniacal and potash salts. The aim is to secure uniformity in the richness of the fertilizers. The company undertakes to apply itself its own manures, either on lands it has rented or leased. At present it has 5,000 acres under these arrangements, situated in the department of the Seine and Marne, and not at all of a rich nature. It is the principle of "farming" agriculture just as is applied to railways, canals, mines, and banks, and comes to the aid of cultivators who want capital, in the shape of manures, stock and machinery. The company groups its holdings, so that each can assist the other, and judiciously employ the most improved agricultural machinery. The company either has a steward, who receives a salary of fr. 2,000 yearly, plus board and lodging, and 6 per cent. of the net profits: or a tenant, who, after all expenses are deducted for manure, and 6 per cent. for capital, goes halves with the company in the division of profits. Arrangements are so made, that, if possible, each farm may have a speciality, either for grain, roots, dairy produce, live stock, fruits, vegetables, &c. The risks are thus lessened, as the wise merchant never puts all his goods in the one ship. One farm supplies the poultry, young geese, turkeys, chickens, &c., at the rate of 400 per month, artificially hatched, 50 per cent. being lost in the process, from the placing the eggs in the drawers till the chicks be six weeks old—their cost up to this period being 18 sous each. Every week the stewards or tenants address a report, with statement of expenses, to the board. This combination plan works admirably and profitably; poor lands have become fertile, others reclaimed, and the crops are superb. The farm servants are well paid, viz: fr. 3½ per day and food; in harvest time each man receives a bottle of wine in the morning, and no stint during the day. F. C.

Paris, August 14.

Ground Oyster-Shells—Season and Crops in North Carolina.

Messrs. Editors American Farmer:

I was glad to see in a late number of the farmer a suggestion from my friend, Col. Leighton, of Norfolk, in reference to the grinding of oyster-shells, and hope it will be acted on. That the ground will be much superior to the burnt shells, will admit of no controversy; and that it will fill up a place long needed for a cheap and valuable fertilizer for our eastern lands, cannot be doubted. From the great quantity always on hand at Norfolk, and the ready accessibility to the market, it is strange it has not been a regular article of commerce before now.

To gardeners, I would recommend a free use of this ground shell, say 600 pounds per acre, 200 pounds Peruvian guano, 400 pounds flour of bone and 300 pounds plaster. The cost will not be very heavy, and the increased yield will fully compensate and encourage to continued usage.

Our season has been a very dry one up to July 15, since when we have had daily showers; but the rains came too late for spring garden crops, which are are almost a failure. By the fall planting of plenty of turnips, spinach and cabbage, we can yet retrieve some of the value of our spring fertilizers, which will be rather exhausted for the spring crop.

We find by sowing early in spring we can make three crops of new Queen onions. The rapidity of their growth in well-prepared rich soil is surprising, and then the flavor is A No. 1. The Paragon we find to be the prettiest and most desirable tomato; the Egyptian sweet corn the best; the early Ohio the best early potato, and the white Peachblow the best late. Mr. Gregory, of Massachusetts, has a fine new variety of muskmelon, which bids fair to be an acquisition, though the Casabo and Bay View are hard to beat. Yours truly, JNO. D THORNE.

Halifax Co., N. C., July 26, 1880.

Rollers and Clod-Crushers.

Farm and Fireside gives the following directions for making rollers and clod-crushers: Whether a roller be made of wood or of iron, the diameter should not be less than twenty nor more than forty inches in order to be the most effective. Those generally used do not exceed twenty inches in diameter, this style being considered the best for crushing clods and pulverizing the soil. A cheap, plain single-section log-roller is objectionable, because when turning around the team must slide one end by main force. The sliding of the roller in this way will, on soft land, throw up a ridge which, when one is rolling young grass or grain, is not desirable. A roller having three sections is liable to the same objection, though in a much less degree, while a four or more section roller is unobjectionable on this score. It is for this reason that several sections of no more than one foot in length are recommended.

In selecting timber for a roller, take white-wood, white elm or sycamore, as the two last named are the least liable to crack when seasoning. In order to avoid large cracks the timber ought to season one year under shelter with the bark on. Do not, however, put off making the roller for a year on this account, for one for immediate use will pay for itself several times over by reason of the increased crop which will follow its judicious use. To make a roller, select a log eight feet in length; place it as nearly level as possible, and with chalk or a piece of keel mark it into sections twelve or eighteen inches in length, and with a sharp crescent saw cut it as marked. Find the centre with a compass and dress to the outer circle; make so as to make a round block wheel. Eight blocks one foot in length, having an inch and a half hole bored though the centre and strung on a round rod, with a wooden washer between the wheels, will make a most desirable roller. The use of gudgeons or iron pins, ten or twelve inches in length, which were formerly driven into the ends of the roller, is now discarded, as they will work loose and cause trouble. The frame should be made of four-inch scantling, and consist of two end-pieces and three cross-pieces. One of these should be placed in the rear of the sections and two in front. These pieces are a trifle over eight feet in length. The tongue should be thirteen feet in length, four inches square at the large end, and be framed into the cross-piece in front of the sections. The front cross-piece is also framed into the pieces at the ends of the roller, and is about thirty inches in front of the other. The tongue should also be stayed with iron rods. After the rod is passed through the frame and the rollers, a strip of hare wood should be put on the outside of the end pieces so that the rod cannot slip back and forth. Do not fasten the rod, but let it turn. The draft will be lighter than if the sections are compelled to turn upon the rod. Of course in this way both sections and rod will revolve. With a large gimlet make a hole in the pieces constituting the ends of the frame, directly over the ends of the rod, so that the bearings can be readily oiled. Two braces in the form of a letter A, one at each end of the roller, will serve to support the seat of the driver, which should be of the same length as the roller.

If one cannot procure a suitable log, take oak planks two by twenty inches; cut two pieces thirty-six inches in length, and spike another wide plank across them. Strike a circle full size, dress smooth and round, and finish by boring a hole in the centre for the rod. Four of these will be needed in order to make a two-section roller. Now nail enough two-by-four scantling, slightly beveled, to the wheels referred to. Increase the thickness of the outer ends of each section by cross-nailing upon them a piece of white-oak plank one foot square, which will come slightly in contact with the frame. An iron rod one and one-eighth inches will be large enough for this roller. Heavy strap-iron bands, heated and put on, will be necessary as soon as the roller becomes thoroughly dry and seasoned. The frame should be made like that for the roller first described.

The next best thing to a roller is a clod-crusher. For this, the simplest form of one is

four straight red or white elm poles, four to five inches in diameter and ten feet in length. Place these on the ground six inches apart, and then two feet from each end firmly pin two cross-pieces, letting the latter project enough to attach a chain to which the team can be hitched at a point in front of the crusher. The frame will be stronger if the cross-pieces are put on in a direct line with the draft.

An excellent plank drag, or smoother, for use just before the drill is started, can be made as follows: Take four two-inch planks, twelve inches in width, ten feet in length; let them lap four inches, spike three cross-pieces on them, and arrange to hitch it in the manner described for the clod-crusher. This will be found excellent for covering turnip, grass and other small seeds.

Silk-Raising in the South.

It is gratifying to be able to state that this interest is beginning to receive attention, and that already systematic and intelligent effort is being displayed in the line of silk culture in this country. Parties in North Carolina have found it sufficiently profitable, even with present drawbacks, to raise silk-worms and ship the cocoons to France. One gentleman in Raleigh has shipped two bales to Marseilles, each containing over 100 pounds of choked cocoons. These have been sold at Marseilles for over $6 per kilogram, (not quite two and one-quarter pounds,) and the freight from Raleigh to Marseilles did not exceed $3 per 100 weight. The cocoons were raised by the children of the family, and aside from the silk product there were produced a number of eggs, for which there is now a ready market abroad at from $3.50 to $4 per ounce.

Several other persons in different parts of the country have also reared sufficient quantities of the cocoons to warrant New York brokers in offering from $1.50 to $2 per pound for the same. When parties find it profitable to raise silk under these adverse circumstances there can be no question as to the growth of the industry whenever a home market is furnished for the raw material, and that when it shall have been demonstrated that there can be offered and paid for cocoons some stated sum that will yet allow a profit on the reeling, the industry will not be wanting to seek profitable investment therein. There can be no question of the adaptation of the larger parts of our country to silk culture or of ability to grow the worms successfully. Experience has established these two facts, as it has the superior quality of American-grown silk. It is not so necessary to urge the cultivation of the mulberry as it is to establish first a market for the cocoons. In some parts of the South the best white mulberries are already grown in large orchards for the sake of the fruit, which is deemed a most valuable food for hogs; and in case the mulberry trees already grown should at any time be cut off by mildew and disease, as they were at the close of the multicaulis fever in 1839 and 1840, we have the advantage over Europe and other countries in being able to fall back upon the *maclura*, or osage orange, which proves, when judiciously fed, to be as good as mulberry.

Live Stock.

How to Manage a Flock of Sheep.

Messrs. Editors American Farmer:

In the first place be careful to select nothing but the pick of the best sheep to be had. Beginning your season, say September 1st, tag the ewes, then turn in your ram, he being the heaviest shearing and best-developed Cotswold you can procure, for no progress can be made in the offspring unless the sire is better than the dam; if they be too fat, feed on dry food for a week or two, to reduce their flesh. An overfat ram is not as active nor as sure a sire as one in fair order; neither will an overfat ewe breed to a certainty. A good plan when you have a choice ram is not to let him run with the flock, but keep him in a separate lot or field adjoining the ewes, in company with one or two ewes to keep him quiet. When the ewes in the adjoining field want his services, they are likely to lurk around his fence; turn such with him, let him serve them twice well, at an interval of two hours, then separate to a more distant field. When the whole flock has been gone through, turn him in and he will pick up all that have missed getting with lamb. By this means a good and choice ram can be used on a flock of 50 to 75 ewes; whereas, if let run with them, another ram would be required; and if using a thoroughbred considerable cost is thereby saved. Get your flock as fat then as you can; and if pasture be scant, feed them one gill of corn and oats mixed daily, continuing till winter; and having provided yourself with plenty of roots, which ought to be fed in small pieces, with a little bran and chop sprinkled over them, and as much good hay as they will eat, your flock will do well and be prepared to raise good lambs. Roots substitute grass and keep the bowels open, produce a good flow of milk and return doubly the trouble and expense had with them. Provide shelters against storms and cold. Cold rains will reduce their flesh and wash out much of the yolk, thereby greatly lessening the weight of fleece. Except during the period of lambing season it is better not to confine them at all, but allow them to go in their shelters at will. But unless provided with good shepherd dogs, place them at night in a place where they can have access to grass and feed, that is impregnable to the attack of dogs.

When your ewes are due to lamb be sure to house them at night; examine them before you retire, to save a weak lamb or help a ewe in difficult labor, thereby saving many lambs that would otherwise be lost. Rye is also a good winter pasture, and with roots, oats, bran and oil-cake, you will raise lambs worth double those kept on what they can pick up. We believe in early lambs, because they get a good deal of their growth before hot weather comes on. A lamb stops growing comparatively after June 1st; hence, it is perceptible that a lamb

having gained 75 pounds by that time, will be much larger by fall than a late one will. For the thrift of the lambs, shear the flock as early in the spring as the weather will permit, and if your flock be infested with ticks they will move to the lambs. Dip the lambs a day or so after shearing in a decoction of tobacco, and you will thereby kill them out; otherwise your lambs will not grow, and unless you examine them you will not know why. We have seen them nearly devoured with ticks, and did not know why they would not grow. Unless you are a breeder, and wish to keep your rams for that purpose, castrate the ram-lambs that fall after the 1st April. Early lambs don't need it, because they are large enough for the butcher by August 1st. Should a ewe lose her lamb, and you have another lamb without a mother, skin the dead lamb and place it on the one you wish to be cared for, and you have no further trouble, because the ewe that lost her lamb will own it. For summer management, provide good shade and plenty of clean water; keep plenty of fresh dirt under your shade-trees, where there is always a large accumulation of droppings.—Smear the sheep's noses well with tar to keep out the grub from their heads; keep also their feet well pared, to prevent hoof-ail, and by no means be ever induced to turn your flock on wheat stubble, because in eating the grain they must also eat the beards and chaff, which is almost entirely indigestible, will either collect in the stomach or irritate it so that they will surely die. Keep no ewe over except a good shearer and a good mother. If you have a large flock and plenty of land, divide your flock and don't keep over 30 together, and often change their pasture to a fresh one, and we believe that sheep managed as herein advised will, with our experience, pay better than any other product from the same quantity of land.

Yours, E. C. Legg.

Kent Island, August 23, 1880.

Late-Summer Care of Cows.

Too many dairymen are careless about full feeding their herds in the busy time of harvest; yet this is, perhaps, the most trying time of the season. The farmer is extremely busy, and forgets to inspect his pastures, and see that there is sufficient food to keep his cows in condition and to produce a full yield of milk. He often says: "I fear my pastures are getting too short for my cows, but I hope that we shall soon have rains that will give fresh feed, and then my cows will come up again." But this is a mistaken opinion, which he seldom takes the trouble fully to investigate. Milk is a temporary product, and naturally grows less as the time advances from calving, and when there is a falling off it can seldom be recovered; so that when a cow falls off 5 or 10 lbs. in her milk it means the loss of about that amount every day for the remainder of the season. This is a very serious matter, and does not admit of delay for propitious rains. Before they come and cause the grass to grow, your herd of cows have lost one-fourth to one-third of their usefulness for the rest of the season. Let the dairyman, then, look to his herd in time, and see that the wants of each cow are provided for. A dairyman should study the peculiarities of each cow. Some cows will appropriate all the extra food they can digest to the secretion of milk, and even deplete their own systems to keep up a full flow of milk. Such cows should be especially well provided for; their generosity should be reciprocated. These are the cows that pay for feeding. They pay back the principal with a large percentage of interest on all the extra food given them. They are only good cows that will pay for extra feeding; in fact, they are only good cows that will pay for feeding at all. And a dairyman may rest assured that a cow that will not respond to liberal feeding by an equal increase of milk is not worth keeping, and, instead of adding to his income, runs him in debt every year. If he has carefully noted the comparative yield of milk by each of his cows, he should feed them in proportion to their yield. From long practice we have found no failure of good cows to respond to extra feeding in late summer. We have often given debit and credit to the cows on extra feed, and always found the credit ahead. When the feed begins to grow scanty in July, commence by feeding ½ lb. of linseed-meal and 1 lb. of bran to each cow per day. The linseed costs 1½ cents and the bran ¾ cent, making a cost of 2 cents per day. This small allowance will keep up the full flow at the beginning of the deficit of grass. If the pasture should become still shorter double the allowance, and still the extra milk will pay all. We have often, also, mentioned the fact that the fertilizer left by this rich food is worth a large part of the cost of the extra feeding.

Of course, if the dairyman has green clover, fodder corn, millet, peas and oats, etc., to feed his herd night and morning in stall, he may dispense with the other food; but, as there are so few dairymen who have fully provided these green foods, the great body of them must resort to grain foods. The various oil-cakes should always be used in part when food must be purchased, for they have an excellent effect upon the cows as well as the product.—*National Live-Stock Journal.*

Wolf Teeth in Horses.

The so-called wolf teeth are in themselves harmless enough, yet the popular prejudice has a foundation which it would be well for horsemen not to ignore. Most diseases of the eyes occur at that period of life when the milk-teeth are being most rapidly shed and the permanent teeth are coming up. To suppose that a horse suffers nothing in cutting his teeth is a great mistake, as is shown by the frequently slow and painful mastication of some young animals by the dropping of food occasionally in a half-chewed condition, and by the heat, redness, and swelling of the palate and gums. That red, swollen and tender state of the roof of the mouth behind the front teeth, familiarly known as "lampas," is but an indication of this teething trouble; and in not a few instances it renders the animal feverish, weak, and, by virtue of the general congestion of the head, strongly predisposed to inflammation of the eyes. The wolf

teeth are in the mouth during the greater part of this period of teething, and are usually shed towards its completion; so that once it is hinted that these are the cause of the trouble with the eyes, the owner, looking into the mouth, seems to find ample confirmation of the statement. The wolf teeth are, however, the most harmless in the mouth, having long ago reached their full development, and are but slightly inserted in their sockets; while the great and dangerous irritation attends on the cutting of the large grinding teeth, and, in the male, of the tushes.

The presence of the wolf teeth in the mouth at this time is an accident, and not an injury. The temporary recovery often following their removal would have taken place all the same had they been left in the mouth, and a later attack is just as likely as if they were present. The excitement attendant on teething is natural; what we should guard against is its excess. Any costiveness of the bowels should be corrected by the feeding, or, if necessary, by one ounce Glauber's salt daily. Teeth pressing painfully beneath tense, resistant, painful gums, indicate the need of the lancet; teeth entangled on the crowns of their successors should be removed; all excessive swelling, redness and tenderness of the gums demand lancing; and, finally, all unnecessary excitement or exhaustion should be avoided.—*Nat. Live-Stock Journal.*

Selecting and Rearing Brood Sows.

A brood sow should be a good milker. However good in other respects, if deficient in this she should hardly be retained as a breeder. An abundance of milk for the first eight or ten weeks of their existence is the best preparation young pigs can have to fit them for profitable growth in after life. It is not always possible to decide with certainty whether or not a young sow will prove to be a good milker; but as with cows, so with pigs, we may learn from observation and trial to know in some degree, judging from their general appearance, what to expect. Much will depend upon the dam and grand dam in this regard. Milking qualities in swine are as surely transmissible to progeny as in cattle. Thus it is as true of swine as of cattle that this trait may be greatly improved by retaining only good milkers for breeders, as well as by feeding them when young with a view to their development as milk-producers, rather than as fat-producers. For this reason spring and early summer litters are usually the best from which to select young brood sows. They can be kept through the summer almost entirely on grass, which, if abundant and in variety, will make them grow nicely, and at the same time the exercise required in grazing will keep them in good health and thrift. By the time cold weather comes on, and corn is to be fed, they will have become nearly old and large enough for service. But even after this continued care must be taken that too much corn or other fat-producing food should not be given them.

We must, however, bear in mind that at this period all animals naturally lay up fat which afterwards goes to enrich the milk. Hence, while they should not be allowed to become over-fat, they should yet be so fat as to supply this demand of nature, and to retain the general health and vigor of the system.

When they have dropped their first litter, the most they will need for the first five or eight days will be cooling drinks and very little rich food. Wheat bran scalded and then thinned with cold water, to which may be added a handful of ship-stuff or middlings, may be given. In ten days or two weeks the richness of the food may be gradually increased, great care being taken, however, that both as to the quality and quantity, that these changes may not injure the health of the sow, or so affect her milk as to cause scours in the pigs. It is a very common mistake in feeding sows having young pigs to give them too much strong food when the pigs are quite young.

It is not until the pigs are three or four weeks old that they really begin to tax the sow heavily. Then it is that the sow should be liberally and regularly fed on good, nutritious milk-producing food, and at the same time the young pigs should be taught to feed by themselves at a trough out of the reach of the sow. If thus managed, both sow and pigs are benefited. The strength of the former is kept up, and her disposition to produce an abundance of good, rich milk is so encouraged as to fix this as one of the best traits of her nature; while the pigs, by the extra feed given them, make a corresponding rapid growth, and that at a comparatively small cost.

Young sows brought up in the manner suggested, and thus cared for with their first litters, may be depended upon to do as well or better with their next, provided they have anything like fair treatment. In case, however, a sow fails to prove herself a good milker, after a fair trial, she should be replaced by one of better promise, unless for some special purpose it is thought best to retain her.—*Berkshire Bulletin.*

The Hog Domesticated.

The Requirements of his Nature not to be Overlooked.

The importance of the hog as a food producing animal has ever been conceded by the most enlightened nations of the world. Indeed, there has never existed a domestic animal of more importance, or one more submissive to the will and interest of man than the hog, nor one which is ever more ready to yield to the influences (favorable or otherwise) connected with its breeding or keeping. Though he cannot labor like the horse, or the ox, his importance consists in qualities irrespective of the labor and duties which may be performed by many other domestics. But respecting a high ratio of intelligence, courage, and personal attachments, the hog has much to recommend him; indeed, his superiors are few in these respects. But in order to realize the full force of the many claims he has upon our attention and interest we must consider him in another light—claims which have been acknowledged since man's earliest history on the globe to the present day, claims due from the most enlightened and wealthy of

the world. His flesh as human food has for ages graced alike the repast of the wealthy and refined as well as the tables of the most humble; and for the mere sake of his flesh, vast herds have been reared almost throughout the entire world, affording to commerce an interest secondary to no other animal. And to view him in this age of improvement and high culture he lends a claim as well as an indispensable interest to every rural home. His breeding and rearing have become objects of special concern, and now involve the capital and interest of every agriculturist, and the supply of every market with the greatest staple of animal food. But notwithstanding the many claims he has ever had upon us for our care and attention, there is no animal on the face of the globe that has had as little justice and as much injustice done him as the hog. For ages he was denied even a historical representation along with other animals of much less importance. Taken from his native jungle, he was subjugated, reared in filth, and slaughtered in disease, and then denounced by the heathen lords as a beast "unclean." In a state of nature he was free from disease and enjoyed every privilege which nature allotted to his existence. But being subjugated, he has been cut off from all those natural resources which have ever been so essential to health and even existence; and not being provided with proper substitutes for them in domestication, he has become a prey to diseases which adverse treatment and a domestic life only can give. And on this point, experience and observation both teach the sad fact, that, the further we advance in civilization and culture, and the further we remove the hog from his natural elements and natural requirements, the intensity and fatality of all his diseases will increase. Be this as it may, an important fact, which I wish here to bring to view, is, that while the hog has for ages been under a state of subjugation, and his general contour and peculiar characteristics have, through every age, undergone so many and varied changes, his nature and all his requirements remain the same, unchanged and unsubdued. And however much it may have been blunted by domestication, when unrestrained it will ever cry back to his primitive bequests which nature has allotted for his existence. From these facts we may be able to draw some instructive conclusions; one of which is, where nature and its requirements cannot be subdued, obedience to its laws is the surest safeguard against disease and death; and whenever we consent, in the breeding and rearing the Berkshire pig, to yield to his natural requirements, or to make the proper substitutions for them, we can then build the artificial structure free from disease, and offer to the pork and ham-loving world the greatest dainty in animal food.—*P. B. Bryant.*

Pig Management.

It has been far too customary to half-starve store pigs after weaning them, allowing for their food only a little sour whey, beyond what they get for themselves. Many farmers who do this probably imagine it would not pay to adopt a more liberal method of feeding. But let them try it on, and they will soon find that great is the error to keep pigs, any more than any other kinds of stock, stagnant at any period of their existence.

Although it is by no means so difficult to make a lean pig thrive and alter his condition, when the feeder commences operations, as to effect the same change in a lean sheep, heifer or ox, still a grave mistake is incurred whenever the young animal is allowed to decline in flesh, and not kept constantly advancing in condition.

The great art of remunerative stock-keeping is the same for all animals when kept for meat production. From the period of birth until slaughter, there should on no account be the slightest stagnation in growth or decline in condition rendered possible. This should be avoided as a fatal stumbling-block to success; and no stock can be kept so as to pay well for their food unless this art be well understood and its principles acted upon.

It does not suit the circumstances of all farmers to keep sheep; and to small occupiers, and those devoid of much capital in particular, swine are valuable indeed. With no other kind of stock can a farm be so cheaply stocked, and no other will increase faster if allowed to do so.

Sows, as a general rule, ought neither to be too highly fed nor kept too poor when big with young; and particular care should be observed to give no forcing diet immediately before and after parturition, there being a danger of heating food leading to milk-fever.—*Live-Stock Journal Almanac.*

Value of One Improved Animal.

In Mr. Bonner's barn we noticed a good Short-horn bull, two years old last spring, thoroughbred, registered, that cost $150, we believe. He was kept for the double purpose of improving the stock of the farm and of the neighborhood as well. His progeny for the present year will number at leat 60, yielding say $120, though a considerable number of these will be in the home breed. A little figuring will show the value of a single such animal. The calves will be worth $8 to $10 each at one day old, while the ordinary "natives" sell for only $1 each when dropped—an increase of $7 to $9. Call the increased value only $5 each, a very low estimate, and the increased value of the 60 calves will be $300, or twice the cost of the bull. But look ahead a little. The expense of raising 60 animals to three years will be about the same for natives or good grades, but at that age the improved animals will sell for at least $25 more per head—equivalent for the 60 animals of this one year's get to at least $1,500. Let it be kept in mind that this result will surely come from keeping this $150 animal a single season, while his value a year hence will be quite as large as now. And this may be depended upon annually for half a dozen years. There is no doubt that the above figures will be fully realized. Query: Why are not more such breeding animals introduced into every neighborhood where farm stock is kept? Similar figures apply to horses, swine, sheep, etc. A

multitude—indeed the great mass—of farmers do not hesitate to graft their native apple-trees with improved scions; yet they are satisfied to keep on raising, caring for, and using "scrub" animals, when every dollar expended in improved blood is speedily returned many fold.—*American Agriculturist.*

The Poultry Yard.

By G. O. Brown, Montvue Poultry Yards, Brooklandville, Md.

Attending Poultry Exhibitions, &c.

During the past few years the numerous agricultural fairs and shows have gradually acknowledged the importance of encouraging the breeding of pure-bred poultry. The unsightly mongrels are being pushed aside, and replaced by fowls attractive, uniform in plumage and of real utility. Instead of being judged by a *committee*, (?) who in numerous instances have been known to award premiums to two hens, *thinking* one was a male bird, the judging at all first-class agricultural societies' shows is now performed by some of the regularly appointed judges of the American Poultry Association, and the "standard of excellence" is the authority. By the manner of proceeding in the latter-named instance, the farmer's stock of poultry is rapidly improving in excellence. More attention—when it is discovered *extra care pays*—is devoted to the poultry yard. And there are to-day many farmers who look with as much pride upon their flocks of Brahmas, Cochins, Leghorns, Houdans, &c., as do those who possess handsome herds of Alderneys. With a wide-awake farmer it is no longer "a hen is a hen, and one is as good as another;" experience having taught and proved—even against long-established prejudice—that if eggs in quantity are to be relied upon, or a quick-maturing market chicken or a superior table fowl is specially wanted, that among the pure breeds can such *ideals* be found. All the good qualities common fowls may have are inherited from the admixture of some recognized thoroughbred. The farmer's table is also now-a-days more plentifully supplied with sweet, wholesome food,—chickens taking the place of pork. This agreeable change of diet, for health's sake alone, is sufficient to cause all farmers to take an interest in that which benefits them in such an agreeable twofold manner—*health and profit.* There is much farmers may learn about poultry—the different breeds—by attending the poultry shows; more in fact than by reading the books. The approaching Baltimore county exhibition affords a most excellent chance in this direction, as the display of poultry last year in quality equalled a regular poultry show, and from present appearances the approaching exhibition will exceed the last in its display of choice thoroughbred poultry. It will afford me pleasure to "show around" any who come to me in person, and will cheerfully give any information I am able to do. I have consented to act as superintendent of the poultry department, and will be found *on the spot* most of the time.

Poultry Notes.

The following remarks, by *Home and Farm*, are not only wholesome advice for the beginner, but also bear repetition for older breeders:

A farmer in Pennsylvania is justly proud of his business with his fowls, which are never troubled with disease, and give egg returns surprising to those who think that poultry ought not to require any attention during six or eight months of the year. One feature of his is supplying them with sour and "loppered" milk, of which, being the owner of a butter dairy, he has an abundance. It is given every day in troughs placed in convenient and sheltered positions, and care is taken to put in only so much as will be eaten up clean.

Facilities for ventilating the poultry-house, so as to insure freedom from fowl odors, are indispensable. A neglect of this point has rendered many an expensive structure useless, on account of the prevalence of disease among fowls contained in it.

Breeding fowls for their flesh pays well on farms, where they can be raised cheaply in large numbers; the Brahmas and Cochins and their crosses on the common stock are desirable for this purpose. For eggs principally, the Leghorns will usually be found profitable, or cross the Game on the best of your dunghill hens, and you will have pullets that will lay splendidly, especially in winter, if they are well fed and have comfortable quarters.

It is easier to keep lice away than to drive them away; but when they are in possession, take flour of sulphur and lard in equal parts, melt the lard and carefully stir in the sulphur until the mass is cold. Rub some of this under the wing of each fowl, and on the head if necessary. Do not treat the sitting hens thus, for they are apt to grease their eggs and prevent hatching. Make new nests, sprinkle them thoroughly with flour of sulphur, and burn all the old ones. Coal-oil the perches, whitewash thoroughly, mixing a little carbolic acid with the wash, and you will not be troubled with lice or other parasites for a while to come.

A little sulphur occasionally, mixed with the food during hot weather, especially if you are feeding almost exclusively on grain, will be found beneficial, more particularly to the older birds,—the young chicks requiring, as a rule, nothing of that kind to help them along.

The beginner is apt to think that all that is necessary to make poultry breeding pay handsomely is to buy some choice birds, raise a lot of fine chicks, and sell them for the same range of prices paid for the original stock. This scheme generally goes along nicely until the customers are wanted, when it is found that they are very backward about coming forward. This is what might have been expected, for all beginners like to buy of a breeder who has, by several years close attention to business, established a reputation, and are very naturally shy of the stock of a novice. The comparatively high price secured by the breeder of several years standing is not merely the price of the bird he sells, but includes pay for his valued and costly experience.

Errors in Poultry-Keeping.

Although there are many widely different breeds of fowls, adapted more or less to the varied wants of the farmer, there are some general rules for their management which are applicable everywhere; and many flagrant errors are made by most farmers. One serious error is the common custom of keeping hens until they become too old for profit, because they were choice birds and good layers when young. A hen of any breed will lay only about half as many eggs the second year after she commences laying. All fowls kept by a farmer after they are two years old are kept at a loss, as far as money is concerned. When a whole flock is allowed to run without killing off the old ones and replacing them by pullets, disease is sure to attack them. If the plan of keeping only pullets is once followed, I am sure that no farmer will ever abandon it.

Another bad practice is that of allowing the fowls to become wild, so that they are afraid of any one and hide away their nests, and the few chickens they hatch lose their lives from want of food, care and shelter. To be sure, chickens hatched late in the summer, and brought up in the fields by a wild mother, are hardy; but this practice is not profitable, as the cost of wintering exceeds the summer returns. As a general rule, however, summer chickens are more profitable than the very early ones, as they get a more varied diet, better exercise, and are healthier in every way. But fowls to be profitable must be kept tame. If, however, the chickens are to be grown for sale, for breeding or for show purposes, it is necessary that the chickens should be hatched as early in the season as possible, so that they may attain full growth and feathering by fall.

The Asiatics and other large fowls require much more feed and care than the Polish and other small breeds. As far as my experience goes, the Black Spanish and White Leghorns are even more profitable than the Polish. I find, also, that if any breed is allowed to run year after year without change of cocks, it does not take long to make that breed unprofitable and liable to disease. Some poultry fanciers say it is necessary to breed in-and-in to keep up the purity of the blood.* If this is so, then I prefer fowls that are not pure-bred. It will not do to transgress the laws of nature in any direction, and nothing shows quicker a deviation from these laws than a flock of fowls.—*American Stock Journal.*

*We think the writer is mistaken about "poultry fanciers" in this respect, as our extensive acquaintance with the fraternity leads us to judge "*in-and-in breeding*" is something all avoid, and rarely ever use a male bird more than two seasons, when fresh blood is introduced in the flocks. The result of new blood shows itself not only in stronger hardy chicks, but increased size in the mature bird, and a more liberal yield of eggs. G. O. B.

The Dairy.

Economical Rations for Milch Cows.

Prof. L. B. Arnold says: The tendency of an increase in the richness of the common food of cows in milk is to increase the percentage of both fat and casein, to increase the yield as a whole, and to improve the quality of butter; but the relation between the butter and the other solid constituents of milk will be but little varied. The per cent. of water will be found the most variable element in milk. It will run down or up, as the food is rich or poor. This statement of the influence of feed is based on the general fact that the common food which cows are in the habit of receiving does not, as a rule, supply them with as much nutriment as they could appropriate. By giving food richer than the common fare more could be digested and utilized. This is a fact of common observation and experience. But there is a limit to which the increase can be carried. It cannot go beyond what the vital power can take care of. Milk, like other glandular products, it is believed, is derived in part from the destruction of the gland substance and in part by transudation from the blood, the butter globules in the former and the albuminoids in the latter way. Glands differ from other parts of the body in the rapidity with which they are built up and dissolved. The milk glands, in particular, are built up and decomposed rapidly; and as the milk tubes and blood vessels are only separated by thin walls of membrane, transudation is easy, and must vary with the composition of the blood. It will require but a short time, therefore, for a variation in the richness or poverty of the blood, by reason of a change in food, to begin to be appreciated in the milk. But the building up and destruction of the milk glands, and also transudation, will be fast or slow according to the supply of material in the blood, and must therefore go on essentially alike in each. The circumstances which tend to hasten or retard action in one will tend to hasten or retard it in the other. A constant tendency to equality of production in these two elements of milk must be apparent.

That an excess of fat-forming or flesh-forming material in the food of milch cows will correspondingly modify the milk products from normal rations has been strictly denied. But that an excess of fat or albuminous matter in the rations will induce a tendency to utilize it in accumulations of bodily fat or flesh, or in corresponding elements of milk, not only exists, but is capable of being cultivated and transmitted. We have living examples in the extraordinary tendency to the accumulation of fat in Short-horn cattle and numerous varieties of sheep and swine, and the vast accumulation of muscle in the Clydesdale and Norman horses, and also in the milk of the Channel Island and Holstein cows—the former rich in fat, the latter in cheesy matter. This tendency, though not wide nor sudden, is certain and uniform. That an extraordinary supply of fat, or of albuminoids in the rations, will be felt in the corresponding elements in milk, has been proven by

direct experiments in the German experiment stations, but the effect will not be in ratio in which it appears in the food. There is a strong tendency to uniformity in the composition of the blood, and a still stronger one to uniformity in the composition of tissue.

Inequalities in the elements of food are always very much reduced before they become blood, and the variations in the blood are still further reduced before becoming structure or secretions,—so that by the time food becomes milk, it approximates uniformity in the relation of its elements. Albuminoids in milk which come from transudations of blood, vary sooner and more widely than does fat which comes from the tissues. But since neither an excess of albuminoids nor fat nor fat-forming food in the rations produces an equal excess in the blood and a still less inequality in the milk, such excesses in food are usually consumed at a sacrifice. So little of either kind can be utilized that so far as the increased value of the milk is concerned they must be fed at a loss. True economy in feeding consists in balancing the elements of food according to the relative proportions in which they are respectively used in the production of milk and flesh, and then to feed all the cows can digest and appropriate.—[*Ex.*

Temperature in Butter-Making.

One of the strongest arguments in favor of the low cooling, which allows of deep setting, is the small amount of labor involved in the management of the milk. By dropping the temperature from 10° to 15° below 60° the cream can be thrown up quickly and the milk quickly got out of the way, and a large saving in time, space and utensils effected. Low cooling has another important feature if done in pure air. If milk happens not to be just right it is liable at 60° to develop unfavorable conditions while the cream is rising. By keeping the temperature down, such changes are retarded and a better quality of butter made than would have resulted had the faulty milk been kept warmer. Low cooling, therefore, makes a more even quality of goods where the milk is liable to vary than high setting; but when the milk is all right, a higher flavored and better keeping butter is made by spreading the milk well—2 to 3 inches deep—and setting at 60° as nearly as may be.

Milk needs airing as well as cooling. The influence of the oxygen in the air ripens the cream for easy churning and develops flavor in the butter. I have proved this by taking milk from the same mess and immersing one part in oxygen gas and the other in carbolic acid gas and keeping them at the same temperature for 48 hours and then churning each separately. Butter from the cream in oyxgen came in two-thirds of the time required for the cream in carbon, and the butter was in every trial higher flavored and had better keeping quality. These results occurred without any reference to the presence of acidity in the milk or cream. The difference in flavor of cream became very distinct while it was sweet and the churning was also easier. The difference was the same after acidity developed as before. These results are significant. They indicate that what we have been in the habit of ascribing to acidity is, in fact, due to æration and consequent oxydation of the milk fats. When milk is spread out thin it receives a much better exposure than when massed in deep vessels, and oxydation is more effective at elevated than at depressed temperatures. The position maintained by many experienced butter-makers that the best butter is made by setting shallow at 60° is not without good reasons in its favor, however objectionable it may be on account of labor and inconvenience.

The experiments in setting milk in carbon and oxygen have a significant bearing upon the mooted question whether cream is best churned sweet or sour. Since the churning was facilitated and flavor and keeping quality developed only in the milk set in oxygen, it argues that exposure for oxydation is all that may be necessary to accomplish these ends, and that acid may yet be dispensed with, as well in butter-making as in cheese-making All good butter-makers now churn at least as soon as souring begins, or a little before, with a growing tendency to the latter practice. Milk which is kept till fermentation sets in is evidently on the road to decay, a condition it is not easy to conceive as of any advantage to the keeping or fine flavor of butter. That milk fats fresh from the cow, without any ripening, churn with more difficulty and make butter inferior in keeping and flavor to that from cream which has acquired some age, is notorious That the ripening usually effected by giving age to the cream is due to æration is corroborated by the results of the centrifugal cream-separator. The thorough æration which the cream gets in a few minutes in being rapidly whirled off from the fresh milk, secures the easy churning and high flavor which are only the result of time when the cream is not so forcibly aired. It demonstrates that neither time nor acidity is necessary for the desired ripening of cream, which observant butter-makers concede to be essential to secure the best results, and leads to the inference that if we can get the easy churning and perfect flavor without the stale condition which accompanies fermentation, it is better to churn sweet than sour.—[*N. Y. Tribune.*

The Butter Grain.

The dairyman cannot be too careful in selecting his cows. The cream from one poor cow mixed with cream from fifteen or twenty good ones will injure the butter. Different opinions have been given about the grain of butter. Some contend that the grain is formed by the small particles of oil that are contained in the pellicles; when the pellicles are broken the particles join together and form the grain. I claim the grain of butter is formed before it is drawn from the cow. It is round or egg shaped, and composed principally of three fats, the size and quality depending upon the blood of the cow, the quality and quantity of the food she eats, the purity of the water and air she gets.

The quality of the butter is affected by the condition of the cow, as to heat or cold. The

more butter made from a cow in a week the better the quality. The science of making fancy flour is to remove the bran from the coarse wheat meal, then to grind it into fine flour. The old process of grinding was to grind it as fine as it should be before the bran was removed. The old process of making butter was to gather it into a body, then press out the buttermilk, and work in the salt. The new method of making butter is to remove all the buttermilk as soon as the grains are formed, then work the salt and grains together, warm it, so it will press into a body, and it is ready for market. The old process is like mashing up ripe strawberries to remove the hull; the new like carefully removing the hull and leaving the berry whole and round.

If the butter is made too warm while churning and finishing it, an inferior article is the result. The contents of the churn should be kept between 53 and 60 degrees to finish butter by the granulating process. Dairymen should have a grading churn or gang of churns, to churn the cream from each cow separately, the churns to operate at the same time, and each churn stopped as soon as the butter comes, and the time noted. The dairyman will then know the time required to churn each cow's cream, and the quantity and quality of each. One grading churn is sufficient for a town or county.

—*Cor. Prairie Farmer.*

Horticulture.

The Growing of Pears.

In starting to grow pears either for pleasure or profit, in the garden or on a larger scale in the orchard, there are a few common-sense rules which, if followed, will be found a great saving in the outlay of both time and money to the novice in pear-growing. There is no profound and secret art attached to this pursuit any more than there is in the growing successfully of potatoes, cabbages or corn. The same kind of application and intelligence applied to the latter will, under ordinary circumstances, be successful with pears. It would be considered a foolish undertaking for a farmer in New Jersey to plant the Mercer potato, at this time, if his object was profit; and it would be more so for a beginner to set out the Glout Morceau, White Doyenne, Flemish Beauty, or twenty other equally poor kinds of pears, for certain wide ranges of our country.

These, like the Mercer potato, have had their day in the Northern and Middle States, and whether from causes known or unknown these varieties do not succeed even under the guardianship of veteran horticulturists. This fact once established, common sense would dictate to the minds of most people to avoid such varieties as are known to belong to this long list of rejected sorts. Again, if a shrewd farmer desires to make money in growing potatoes, he does not extend the list of sorts to a dozen or twenty, but on the contrary he usually confines himself to a very few kinds, when once certain that they grow and yield abundantly and that they sell readily in market. In pear-growing for profit this rule of growing only a few sorts will be found more remunerative when applied to pears than to potatoes. Even in raising pears for home use it is not best as a rule to extend the list of varieties beyond eight or ten, and with a judicious selection this number will be quite sufficient to supply the table from July to February with this delicious fruit. As a rule there is a great waste of time and money in the preparation of the soil before planting the young trees. On stiff, tenacious clay soils, with clay subsoils, under-draining and deep plowing will be found essential to rid the soil of stagnant water, in order to get the conditions which will promote a healthy and vigorous root growth. But on good farming land, such as will produce, with ordinary treatment, 150 to 200 bushels of potatoes to the acre, or 60 to 70 bushels of shelled corn, it would be a useless waste of money to spend the amount necessary to under-drain the soil before planting pears.

The most grave and expensive mistake that almost every one who has planted pears has made is in planting dwarfs instead of standards. There never was a greater mistake made, in fact a greater swindle put upon the American public, than the assertion that dwarf pears were superior to standards for garden or orchard planting. While young and well cared for the dwarf does tolerably, making wood and producing some fine specimens of fruit; but as the trees grow older they become stunted from early bearing, ill-shapen, many of them breaking off at the union of the pear and quince, leaving the trees unsightly as well as unprofitable. At the age of fifteen years, when a standard orchard is in its prime, dwarfs, as a general thing, present a sorry sight. One good standard will yield more fruit than a score of dwarfs.

The spring is acknowledged to be the best time to plant pears, and the date should be governed by the condition of the soil. When this is dry enough to plant then it will do to plant pears, and these should be set only a trifle deeper than they were in the nursery row. Nor is it wise to plant trees older than two years from the seed. The shortening in or pruning should be served the first year, because in "lifting" the trees from the nursery there is a large loss of active roots, and the tops should be pruned to correspond with the loss of roots, as well as to shape the tree. It is very bad policy to allow young trees to bear any fruit. Even when five or six years in place, and the trees are vigorous, a close watch should be kept and the fruit pulled off where trees are tending to fruit-bearing instead of wood-making.

The most disheartening feature of pear-growing is the destructive ravages of what is called fire-blight. The age or vigor of growth of the tree has no effect in warding off this dangerous enemy. It comes and destroys without warning; the first intimation of its presence the owner has is seeing the leaves suddenly turn brown; and the next, that a branch or half a dozen on the same tree are dead. Up to this time there is no remedy against this disease. In my own orchard the blight has had its favorite sorts. The varieties which have suffered most

from blight are the Glout Morceau, Vicar of Winkfield, Flemish Beauty, Beurre Diel, Belle Lucrative and Swan's Orange, and in the order named. There has been no loss of trees or parts of trees in my orchard of Duchesse d'Angouleme, Bartlett, Beurre d'Anjou, Seckel or Doyenne Boussock, although I have seen some of these varieties attacked in other localities. Some ten or twelve years ago I planted and grafted on healthy trees the Japan pears, seedlings of the Chinese Sand. These sorts have all the traits of their parent, in vigor of growth, rank foliage, which for brilliancy of color in the fall equals the Red Flowering Maple, and besides being prolific bearers. The fruit seemed proof against insects, while the growth and habits of the trees seemed to defy attack from any source. My plan was to propagate these varieties and graft the slower-growing sorts on them, and in this way get a more vigorous growth of wood and possibly larger fruit of sorts like the Seckel. Until last year I had no reason to doubt that those Japan pears were blight-proof; but now I have good reason to think differently. The fire-blight struck these trees early last summer, and, what is unusual, it destroyed every branch and twig of several large trees, not leaving me a living sprig of wood to propagate from. This wholesale destruction of these kinds is more curious because we had only one more instance in the orchard during the year, and that was a couple of large branches on a Swan's Orange tree in a distant part of the orchard. This experience settles the question in my own mind that it is folly to assert that the Chinese Sand, or seedlings from it, are blight-proof, for the instances which I have stated above prove to the contrary.—*P. T. Quinn in American Garden.*

Small Fruits for the People.

It is an easy matter to give a list of the six or twelve best Strawberries for the market, and of as many for home use; as well as similar lists of Raspberries, Grapes, etc. The task becomes more difficult, however, the more we become restricted in the number of varieties.

There is a large class of farmers and cottagers who have never enjoyed the luxury of feasting on home-grown berries, fresh from the vines: the far-off pioneer who has just cleared a few acres of virgin forest, striving to make a home and garden out of a wilderness. All these, and many others of limited means, cannot venture to invest much money in a select list of choice varieties, to experiment and learn in after years which kinds are best suited for their special climate and soil. They wish to know how, with the smallest possible outlay, they can procure enough plants for the commencing of a fruit garden, of such varieties as are most likely to succeed everywhere. Although no one variety succeeds equally well everywhere, yet some partake more of a cosmopolitan character than others, and limited to one single variety of each class, the following ones can be depended upon with most certainty:

Strawberries—Charles Downing.

Red Raspberries—Cuthbert, and Turner for the extreme Northern States.

Black Raspberries—Doolittle.

Blackberries—Kittatinny, and Snyder for the extreme Northern States.

Currants—Versailles.

Gooseberries—Houghton.

Grapes—Concord.

All of these are, if not the best, of above average quality, hardy, prolific and of easy culture. A number of plants, sufficient for a beginning, may be obtained from any nurseryman at very small cost, and delivered, without further expense, at the post-office of the remotest settler. No investment, at the founding of a new home, can bear better interest than a few dollars judiciously spent in the planting of a fruit garden.—*American Gardener.*

Floriculture, &c.—September, 1880.

By W. D. Brackenridge, Florist and Nurseryman, Govanstown, Baltimore Co., Md.

The current seasons blend themselves so insensibly one into the other, that we find ourselves on the threshold of the one before we are inclined to let go the influences produced around us as the outgrowth of that which is past.

Summer, with its fruits, flowers, and mantle of green, has bedecked the landscape, strewing morsels around to gratify the eye and pacify the palate; while the autumnal month at hand has her allotted share in perfecting the more substantial kinds of earth's products.

There is something extremely fascinating in the autumn season, consisting of a kind of sedate settling down from the exciting and heating influence of summer, gliding one gently along, so as to realize that very soon an overcoat will be a necessary article in the way of personal comfort. Nature also gradually changes her tints of color in the mantle of green which has heretofore enveloped the landscape; the leaves of the giants of the forest, as if tired of the vernal green formerly displayed, assume a bronze, red or yellow color, according to their kind, a change in difference which no man accounts for; and were it the act of a creature would no doubt be viewed as whimsical: and we ask, why it is that all leaves do not change alike to some definite color?

The floral aspect of the meadow and woodland vales is also undergoing material changes. The Golden Rod of many kinds now waves in the breeze its golden plumes in almost every direction the eye may turn. The tribe appears to prefer dry rolling land, while the Asters or Starworts, with their cerulean-tinted flowers, seem to embrace kinds apparently adapted to flourish in all soils and situations. And people who can find their way into an alluvial creek or rich meadow-land will have their sight gratified by giant corymbs of lilac-colored Eupatoriums, mixed up with masses of yellow Sunflowers, Rudbeckias and Heleniums, and then the traveller on the turnpike will find the Viper's Bugloss or Blue-weed, in greater abundance than is desirable; yet we must say that it is one of the prettiest foreign weeds yet introduced, and were

it not so common in a wild state, would not disgrace our best flower-gardens.

Such are some of the sights and products which, as we said above, make autumn months extremely fascinating; and then the cool nights which cause the mosquitos to beat a retreat, so that jaded human nature may enjoy a sound night's rest.

In preparing land on which to plant ornamental trees, it is of vital importance that it be thoroughly sub soil plowed, or trenched over with the spade to the depth of at least 18 inches; and if you wish to seed the surface down as a lawn, then keep the surface soil near the top, because if turned deep under it will take a vast amount of manure to bring the sub-soil turned up into a proper condition, so as to get grass to form a close thrifty sward. Should it be wet or springy, very few trees will succeed well in it; therefore, we advise under-draining; the drains to be formed of permanent material, as well burned horse-shoe tiles, covering these about 8 to 10 inches thick with small stones, on which lay grass sods upside down, before filling up the drain with earth. No drain should be less than 3½ to 4 feet deep, except you want them to get chocked up with tree-roots.

It is a mistaken idea to suppose that trees found growing wild in what are termed swamps will not succeed on high dry land. We grow swamp Magnolias and soft or scarlet Maples much finer on high well-drained land than we ever saw them elsewhere, the first-named kind under such conditions producing its deliciously fragrant flowers during the whole of the summer months, which it usually does not do in its native habitate. Even Birches and Alders do not dislike a change in locality, and the Water Ash, when grown from seeds in the nursery, flourishes on high land. But if you reverse this condition of things, and plant trees in swampy or wet places that are naturally found growing on dry lands, it will be found they will sicken and die right out; hence the propriety of providing good underground drainage, keeping in mind that for all kinds of crops it will soon make returns for all labor and money expended.

Good roads are wanted in every place, either for the pedestrian or for carriages. These should also be kept well drained—only the drainage in this case will mostly be of a surface kind.

The removing and planting of evergreens should now be attended to; by doing this work early in the month they will get established before the drying winter winds set in, which exhaust by evaporation plants that are feebly rooted. In taking up the trees, as much as is convenient should be left about the roots, and in this matter the distance they have to be transported, as well as the mode of conveyance, will have to be taken into consideration. Moderate or medium-sized trees are preferable to very large ones, say Norway Spruce, various kinds of Pines and American Arborvitæ; from 3 to 4 feet high, is a very reliable size, provided they have been twice or thrice transplanted in the nursery, and upon this latter treatment very much of the success in planting depends. Avoid placing the trees deeper in the ground than they stood before being lifted; this latter, and permitting the roots to get dry, are two of the fatal errors which most planters fall into.

The planting of deciduous trees may follow soon after the evergreens; it is not always prudent to wait until such trees shed their leaves; but so soon as it is thought that these have performed their functions for the season, they may be stripped off by the hand, when the trees can be removed without injury; we would not shorten back or balance the head of the trees before next spring. Magnolias and Tulip trees do best when transplanted in April.

Greenhouse.

Glaze and paint the sashes and all smooth wood-work belonging to the greenhouse; the walls and staging can be whitewashed. The heating apparatus, whether this is effected by hot air or water, should now by all means be put in order, for it is only the act of a sloven who delays such work until cold weather sets in, when tender plants require shelter under glass.

The far-seeing and judicious cultivator will now be collecting piles of thin grass sods, decomposed vegetable mould and well-rotted cow manure, so as to be ready to store away in bins under cover for winter use. A supply of clean sharp sand should at all times also be on hand.

We have always found it most satisfactory, particularly if the collection of plants is of a mixed character, to begin early to house the more tender and succulent kinds before the tops get chilled and the earth about the roots becomes sodden by cold rains; but in housing early, observe to admit air freely in mild weather. Hardy sorts may be left out, so long as the weather may indicate it as safe to do so; but, above all things, avoid crowding the house with plants early in the fall.

We omitted last month to suggest the sowing of Calceolaria, Cineraria, Chinese Primrose, and Sweet Alyssum; this should be attended to at once, because if deferred longer the Chinese Primroses will not be up to the mark at the proper time.

Those who desire to have Hyacinths to bloom in mid-winter should secure an assortment of roots at once, place them in pots as soon as you get them, then plunge the pots over the top in some cool place, in sand, earth or spent tan, and so soon as the pots are filled with rootlets they can be moved into heat. It is a common thing for florists living on the Continent of Europe to have both Hyacinths and Tulips in bloom at Christmas, and we can conceive no good reason why our own florists should not have them at the same time also.

All plants now growing in the open ground, and which it is desirable to save over winter, should, towards the end of the month, be lifted and potted, observing to place them for the first few days after in a close shady situation. Such plants as Erythrinas and even the scarlet Geraniums, when divested of their leaves, may safely be wintered over in a dry cellar, where frosts will not penetrate.

Summer pruning has a tendency to weaken the growth of a plant, while winter pruning tends towards increasing vigor in branches. And I would further add that all pruning is more or less injury to vitality of plants.—*Wm. Saunders*

Garden Notes.

New Geraniums.

Through the liberality of our friend, Mr. John Saul, florist, of Washington, D. C., I have had an opportunity of testing some of the new geraniums of the present season. The test in the open ground this summer has been a severe one, and we may conclude that those which have done well will succeed in the future. We owe a great deal to the enterprise of men like Mr. Saul, who introduce new varieties of bedding plants and other things from abroad often at a heavy pecuniary loss. I know whereof I speak, since, in the slang of the day, "I have been there myself." People think it dreadful for a florist to charge a dollar for a little plant of a new geranium the first season after the variety is imported; but if they had to foot the bills on imported plants, (to say nothing of those that come in dead,) and then nurse them into health and propagate them, they would wonder how they can be sold for a dollar. The only wonder to me is that nurserymen keep up their courage to go on importing. Then again it is vexatious to get a new thing with a wonderful description and catalogue it with the imported description, only to find by the time your catalogues are distributed that it is worthless. What an immense proportion of these importations are worthless only an importing nurseryman fully knows. Some of the new geraniums, &c., are going to stick this time, I think. The new semi-double white geranium "Nymph" I think promises to prove the best double white bedder. In double crimsons "M. Pasteur" is very promising, and so is "Gambetta." "C. Hovey" is too nearly like Asa Gray to be worth keeping separate. Lord Clifford is a very free-blooming single scarlet, with a conspicuous white eye, and will probably be a good bedder. But I am inclined to think that but few single-flowered geraniums will be grown for bedding a few years hence, as the dwarf semi-doubles are usually better. Jeanne D'Arc is a good single white. Dr. Denny is a free-bloomer of a beautiful purplish crimson, with a flush of scarlet in the centre. I fear it will be too delicate for bedding out successfully. As a scarlet bedder I have yet found nothing to compete with the old double Sapeur Pompier for a grand display both in bloom and foliage. I have a bed of it now containing about 300 plants which is perfectly dazzling, with its immense heads of fiery scarlet. I don't know why florists don't grow this sort more for summer cut flowers, as the single pips are equal to Carnations and would take the place of Carnations, besides being more brilliant in color.*

Coleus, &c.

Among the new English Coleus received from Mr. Saul I find that "Glow" is likely to be a good bedder, while Aurora Glow and Magic are about as worthless for any purpose as a Coleus can be. Firefly and Sunbeam are both good. Still, so far as I have seen, the new Coleus raised on this side of the water are far ahead of the new English sorts. I am more and more pleased, as the season advances, with the variegated Stevia. I have a line of it around a large bed that has been kept sheared down to about eight inches high. It is about a foot broad and as compact as an Alternantha, while the white of the leaves largely predominates, making it the most nearly white in effect of any plant cultivated. I shall grow it largely for another season's bedding. The brilliant scarlet Lantana "Mamie" is now making a fine show. It is a very showy and desirable bedder, on account of its dwarf and compact habit and great blooming qualities. A large bed of it here fairly dazzles the eye with its bright color.

Vegetables.

In the vegetable garden there is little new except that the new potato "Beauty of Hebron," which I tried for the first time this season, has given us a fine yield of large potatoes and of excellent quality in this uncommonly bad season. It is a very early variety and makes fewer small potatoes than any I ever grew. I think it will soon become a standard sort. Last year I planted Drew's Improved Lima Beans, but found them so unproductive that I have fallen back on the old large Lima. I would like to have the experience of others with Drew's Lima, as my experience may have been exceptional. It is worth noting that the only cucumbers we have had this season were from some planted between the hills of Lima beans and had the benefit of a slight shade. I believe it to be a good practice to put a hill of cucumbers between each Lima-bean pole, as I cannot see that the beans have been injured a particle, and we have gathered to-day (August 3) fine cucumbers from among the beans, where they have been bearing since June. A lady to whom I mentioned growing cucumbers between Lima beans declared that the beans would be bitter—at least she had always heard so; but I have not found any bitter beans yet, and don't apprehend any bad results from the cucumbers.

Our friend Watson has had the same experience with the Wilson strawberry that many growers on the Eastern Shore have had. It is, I am sure, the result of planting the runners from old bearing beds. Seedlings from the Wilson without any cross of any other variety are almost invariably pure staminate and of course barren. These staminates are very rapid in producing runners, and an old fruiting-bed soon gets full of them. A few years planting from old beds will almost always result in a full patch of these staminate seedlings, and, of

*Mr. Donn, late foreman for Peter Henderson, a few days ago, on viewing my beds of this geranium, said that he thought I had it under the wrong name, and thought that it was "L'Annee Terrible." It is possible that it may not be "Sapeur Pompier," but I got it under this name at least four years before "L'Annee Terrible" was sent out from France. But be its name whatever it may, it is universally agreed by all who see my beds that no other scarlet geranium gives such a mass of bloom. In the catalogues of the few florists who name in their lists "Sapeur Pompier" it is not classed as anything extra, and Mr. Henderson, who formerly quoted it, has dropped it from his list altogether. At the time I procured "Sapeur Pompier" I was largely engaged in hybridizing and growing seedling geraniums, and it is just possible that this may be one of my own after all. I make this statement that people may not order from the florists on my recommendation and plant under a wrong name and afterwards be disappointed. Therefore I propose to give my variety an English name, and shall grow it hereafter as "*Hampton Scarlet.*"

course, no fruit. I saw a large bed of these plants once in Kent county that the owner believed to be Wilson, for he had grown the plants himself; but any one familiar with the Wilson could see at a glance there were none there. This bed bore no fruit, much to the surprise of the owner. The only way to keep the Wilson pure is to grow runners from plants that are known to be pure and not let the nursery beds fruit at all.

Writing about Lima beans reminds me of how much I was surprised when I first came to the Western Shore at the great height of the poles used for these beans in all the gardens about Baltimore, both private and commercial, and I am every season more and more convinced that it is a great mistake to use such tall poles. I am sure from experiments made that a short pole will give beans much earlier and will give fully as large a crop. Six feet above the ground I consider full height for a bean pole, and my practice is to nip the vines as soon as they reach the top. The result is that I always have Lima beans in plenty while the daily papers of Baltimore are quoting "no Lima beans in market except from Norfolk." The crop I believe is increased rather than otherwise by the nipping. There is vast room for improvement in Lima beans aside from the cultivation, and I have commenced the practice of saving seed from the earliest and most productive hills and hope soon to be able to see good results from it. Why should it be impossible, by constantly saving for seed the first beans that form near the ground, to finally get a bush Lima bean as early as our string beans? At any rate I think it worth trying for. W. F. MASSEY.

Hampton Gardens, August, 1880.

Vegetable Garden.

Spinach and kale for fall use should be sown at once; also lettuce for transplanting into frames. Winter radish may be sown up to the 15th. The following articles require good and well-manured land, and should be sown or planted as near to the 20th as possible: Cabbage, cauliflower, onions, (both sets and seed,) spinach and kale for spring use.

For this purpose Jersey Wakefield is the best cabbage, to be followed by Henderson's Early Summer, which last, I think, should be sown in winter or early spring. A late variety of cauliflower should be chosen for heading in the frame, and an early one for the open ground in spring. Last winter I found *Walcherin* and *Lenormand's* both so good in the frame that there was no choice between them. To be sown *now* for spring planting, *Early Dwarf Erfurt* is the standard variety. Where onion sets are scarce they should be saved for spring planting, as medium-sized onions will do very well to plant in the fall. Make the drill about two inches deep, and cover the sets entirely. It is advisable to make at the same time a good seed-bed of onions. If they winter well they will come in use just after the others.

Should such a bed have any protection in this climate? I have read in gardening periodicals published in the North that southward a slight covering of leaves would be sufficient to preserve lettuce, &c., through the winter. Last winter I found that the covering on roses, lettuce, cabbage and strawberries, did more harm than good; and I have never yet been able to save lettuce by a covering of leaves, although they occasionally come through a mild winter unprotected. It would not be safe to risk half-hardy roses without some covering, but strawberries and onions need give us no concern. Spinach and kale for spring use must now be got in. These are often sown broadcast; but I presume this is not done wilfully, but from want of time. They should of course be sown in rows, like almost everything else in farm or garden, and when time will permit they should be properly thinned out. The best variety in the market is the *Savoy-leaved*. It is rare to see a good patch of spinach. It is possible to grow the crop year after year for market without knowing what a good plant of spinach really is. When everything is favorable, and the plants well thinned, each stool will be as large as a half-grown cabbage. But, how few of us get time or help sufficient to do things properly. Crops have to go unthinned and unhoed. Several times during this summer I have been compelled to smother the weeds in the corn-row with the plow, and even to plow down one patch of young beet that was too far gone for the hoe to combat. Celery that is wanted for early use will require some earthing up this month, but as a rule we are apt to begin this work too soon. Where four or five varieties of strawberries are grown, it is a good plan to plant only one kind each year; it prevents confusion. By the end of the month raspberries and blackberries may be transplanted. They should be well cut back. The ground may be prepared for fresh plantations of rhubarb and asparagus, and, when the beds are on a small scale I think it pays well to trench. In trenching land a fine opportunity is given to bury tons of weeds and rubbish, with great benefit to the future crop; but no planting can be done on such beds until the soil has had ample time to settle. The variety of sweet corn known hereabout as the *Egyptian* is very fine and reliable; and that, together with Early Adams, is all-sufficient for a supply throughout the season. JOHN WATSON.

Budding.

Please give me, in the *Rural World*, some directions as to time and manner of budding plums. Have some green gage which do not seem to do well after bearing, and want to bud on wild plum. Also, what is the latest-maturing kind of raspberry, and when should it be set out? By an early answer you will greatly oblige MRS. A. L. MACKOY.

Glenwood, Kan., August 2.

Budding is a very simple operation, which can be done at any time when the bark "peels" readily and the buds are sufficiently ripened—say from the middle of July to the last of September. Take a well-developed single bud, cut off the leaf, leaving enough of the stalk to take hold of when inserting the bud. With a sharp knife cut off the bud, with a thin slice of bark

and wood, commencing say a third of an inch above the bud and ending the cut about as far below it, so that the whole forms a straight, smooth cut; then make a cross cut through the bark of the stock in a smooth place, and also a longitudinal one, so that the whole has the shape of a Roman cross about an inch long. Now raise the bark on the stock with the knife or with an ivory, and push down the bud under the bark until the upper end is even with the cross cut of the stock. Now wrap the whole firmly and smoothly with bass-wood bark or woolen thread, leaving the bud out to prevent smothering, but closing all the bark tightly below and above. In about two weeks the bandage may be taken off, and if the bud is fresh and green, it has taken, and the stock should be cut off an inch above it next spring, and only the bud allowed to grow.

We picked some Turner raspberries to day, and think they will last about as long as any, as they will give ripe fruit for two months. They should be planted in fall or early next spring.—You should get a book on fruit culture, where you can see and read all this better than we can give it in a newspaper article.—*Rural World.*

Early Victor Grape.

This variety was originated by John Burr, of Leavenworth, Kan., who also originated Burr's New Pine strawberry, than which there is not a finer-flavored strawberry grown. It somewhat resembles the old Isabella in bunch and berry, except that the berry is round, and is about equal in quality to that variety when grown in perfection against a southern wall. Comparing it with that old (now discarded) variety in point of quality, is, I think, sufficient praise; but when we consider that it is earlier than Hartford or Ives, an abundant bearer and free from disease, we have a very great acquisition in this line. And while it makes a beautiful and excellent wine, it has a double claim. I have now fruited it for two years, and am highly pleased with it; but the bunches sent me on several occasions from original vines far surpass in size those grown on my young vines, proving again that the fruit improves for a few years as the vines get stronger.

Work for the Month.

This is an important month to the farmer in being the season of preparation for one of his most important crops,—the one which requires more care, time and patience than any other. Intelligent apprehension of what it requires and careful determination of the conditions of success lead a long ways towards securing it.

The Wheat Crop.—Promptness in making ready for seeding and then completing the work when you decide the proper time has arrived is of first importance. On most lands, after plowing and harrowing it is advisable to secure a compact seed-bed to use the roller, the use of which prevents that light condition which is unfavorable to the wheat crop. Sometimes in turning down a crop of pea-vines or other rank vegetable growth, the ground is made too puffy, and so requires the use of the harrow or the adoption of some device similar to that of the English farmers, who drive a flock of sheep over the land to remedy this unfavorable condition.

The method of seeding most desirable, as a long experience now demonstrates, is by the drill. The economy of seed and fertilizer, the lessening of the danger of throwing out by frost, the closeness of the fertilizer to the seed, the cultivation of the surface soil by the teeth of the drill just as the seed are placed in the ground, the evenness with which the seed are deposited, as regards depth and position, all are in favor of its use.

The varieties to sow and the time of sowing depends upon local conditions, which vary in every section. It is well to try occasionally some of the new introductions, but prudence dictates limited experiments at first. The question of the quantity of seed to the acre is now being discussed, and elsewhere will be found some instructive facts in connection with it. In sowing with the drill the average is from 5 to 6 pecks; when sown broadcast 1 to 2 pecks more is used.

The washing of the seed-wheat to avoid smut is to be commended. A solution of blue-stone, of the strength of one pound to a gallon of water, is used by many. Others use a strong brine, and some dust air-slaked lime over the seed, which are previously moistened.

In choosing fertilizers those which contain some nitrogen are considered the best. The plant by their use is given early a push forward, which enables it to establish itself before winter. A mixture of one-third Peruvian guano and two-thirds fine bone is a good application. Another is 500 pounds Peruvian guano, 600 pounds fine bone-dust, 600 pounds dissolved bones, and 300 pounds sulphate of potash. From 250 to 300 pounds of this to the acre is a good dose for most soils. Many approved brands of super-phosphates contain proportions of potash.

Rye.—If not sown, ought to be at once. Give land not in good heart the advantage of a dressing of manure, or of some super-phosphate or bone. Sow five pecks when grain is to be harvested, or double that quantity when the rye is to be cut green.

Meadows.—These may still be renovated by thorough harrowing and the sowing of mixed seeds. Give a good dressing of manure and you will be the gainer thereby.

Tobacco.—The most important time of the tobacco crop is now upon the planter,—worms to catch, plants to top, ground leaves to gather. We are satisfied in our experience that topping and pruning will produce a superior article over the old-fashion way. We hope that some of our readers have determined to use furnace heat, which, if judiciously applied, must prove advantageous. Scaffolds and sticks ought to be immediately prepared and set up, so as to be ready when wanting.

Corn Fodder.—If you are going to save the tops and blades at all, it ought to be done carefully. Corn sowed for fodder should be cut when

in full tassel, and cured in large shocks or in thick piles against the fences.

Turnips sown at once, may, with a favoring season, make a crop.

Live Stock.—If not already done, lose no time in weaning the lambs, so that the ewes may get in good order ready for winter. The breeding stock should be carefully examined, to see that all old sheep are left out. A ewe five or six years old will often do as well as any to keep once more, and perhaps better. It is not to be recommended to keep a sheep after her teeth are much worn away, unless she is very valuable as a breeder, and will pay for extra feed and care while the lamb is with her. If you are so situated that you can raise early lambs, the buck should be turned with the ewes early in this month. But before you do so, go carefully over the flock and cut off all tags frow the ewes; or if cutting off the tails has been neglected, now will be a good time to do that too. It will be found a great help to the buck to keep him in a stable at night, and give some grain during the first of the time he is serving the ewes. The most important thing, next to good care and feeding, is to get a real good *thoroughbred buck*, and you will be astonished at the great improvement. The lambs will show over the old flock, as the grades are often quite as good for general purposes as thoroughbreds; but never use a male unless he is thoroughbred, of any breed. For any one having a lot of old breeding ewes that are not worth keeping for breeding another year, we would recommend keeping them away from the buck, and feed some grain as soon as the grass begins to fail, and have them ready to sell for mutton at any time when the price is favorable, which will usually be in February or the first of March. Sometimes it will pay well to hold on till they can be sheared, which can be done late in March or first of April. Very frequently the wool alone will pay as much as the old ewes would bring in the fall.

Now is a very important time with *hogs* that are intended for pork this fall. Be sure to begin feeding the new corn as soon as fit for *table use*, no matter how much old corn you may have. The new can be fed stalk and all, which will save the labor of husking, and the hogs will eat a large part of the stalks, too, while they are so full of sugar, which will be found to give the porkers a fine start. Always remember that a hog to be profitable must make at least *one pound* each and every day of its life, and more can be done with any well-bred hog if it has been liberally fed all the time after it is old enough to eat for itself; and the mother, too, must be liberally fed while she is suckling the pigs. While on the pork question it will not be out of place to repeat what has so often been said before: that it is much better to reduce all litters of pigs as soon as born, so that they will all be good, than to allow a sow to raise a great number of pigs, all to be poor in quality. A litter of six real good pigs will bring more money at eight weeks old than twelve half-starved runts will at the same age. If raised for sale the buyer will always be pleased with the improvement made in good pigs,—that is if he is fit to have the care of a good pig.

We would recommend keeping the milk cows, not yet with calf, away from the bull for at least two months from this time. All experienced dairymen say cows are more apt to die of milk fever in June than any other month in the year; for at this time they are mostly fat; the grass is at its best;—all of which make the risk of death very great. After July 1st the flies get to be so thick that they cause enough loss of blood to reduce the risk at the time of calving. Should the calves be intended to raise, they too will be better worth raising if either later or earlier. Any of our readers who intend buying steers for grazing next summer or stall-feeding this winter should carefully watch the market and buy as soon as such stock as they want can be obtained at a fair price. It is not likely that the price of cattle will be less in 1881 than it has been in 1880, now the export trade seems to be on such a sure foundation that it must grow, and will greatly relieve our market of all the best quality of beef cattle of suitable size. When buying remember that it pays to get good blood, for such will always sell best when fat. Butchers are learning fast that it pays them well to get nothing but well-bred animals.

Home Department.

I Wait.

If only the rain would cease to beat,
If only the winds would cease to blow,
If only the clouds would beat retreat,
And the summer sunshine glance and glow,
I should be perfectly happy I know.

All day, and every day, I wait
For something or other to come and go
To make my pleasure a perfect state,
To make my heart a summer glow
Of sure delight that will never go.

But all day, and every day, I wait,
And the days run by and the days run low,
And everything seems too soon or too late,
And I never find what I seek, you know,
Never get just what I want, you know.

There's always something or other amiss,—
The tide is at ebb when I want it to flow;
A fleck and a flaw to mar the bliss
That might be easily perfect I know,
If I could but make things come and go.

I've waited now so long and so late,
That the hope I had, like the tide, runs low;
And I begin to think that I shall wait
For ever and ever like this, you know,
For things to come that always go.

And I begin to think that perhaps, perhaps,
When time is so swift and joy so slow,
I'd better make most of the hours that elapse,
And the best of the days that come and go,
Or the years will be gone ere ever I know.

Our Centre-Table.

Not the thing for mere show, with its cold marble top, which, even to touch, sends the blood curdling through one's veins,—its only use apparently the resting-place of a few ornaments or show-books as meaningless as itself; a ghostly presence fitting for the sepulchral apartment so often kept only to dignify the establishment, and called a parlor.

Such was not the centre-table my husband meant when he suggested it as worthy of notice

in our "Home Department;" but a cozy family affair that would naturally find itself in the midst of all that was most enjoyable among the home circle, without a pretence of being fine or fashionable, but simply well adapted to every-day uses, and having a neat, attractive appearance; always well lighted and unwittingly doing more to keep the home band within its influence than if it was a thing of life. The "home room" would lose its distinguishing feature if such a centre-table and its counterpart—the comfortable lounge—were wanting.

To a centre-table of the right kind, and in a room where everybody is at ease, the family gravitates as easily as they drift away from home without it. Reading, sowing and domestic games are its natural accompaniments; and, best of all, mother comes there with the ubiquitous basket of mending, and is thus drawn within the sphere of whatever pleasure or pastime the rest may be engaged in.

The lounge may often prove more attractive to the weary father; but that affords him a happy point of observation from which to enjoy the group so gathered in all their unrestrained freedom and in pursuit of their individual occupations and pleasures

The centre-table, however, would fail in its most happy effect without a liberal supply of suitable reading matter; given this and the taste to appreciate it, our young folks will require a powerful counter-attraction to draw them away from home to spend their evenings, particularly if they have been so occupied during the day as to make rest also enjoyable.

Domestic games should be encouraged to a reasonable extent, and it is well that the parents should sometimes participate in them. We may see in "tip-top-toe," the a b c of games—over which the little tow-heads bend so eagerly—the witching power of games to draw out whatever there is within us capable of social effervescence. Of course there lies behind this fascination the danger of waste of time, as well as the hideous monster called "gambling;" but there is a monster to beware of lurking amidst all we engage in, whether it be for pleasure or things essential to our existence. What we need for ourselves and to inculcate in our children is the force of character to use without abuse anything that is not in itself wrong, and there is no place where they can be better taught to discriminate than around the centre-table at home and in other *home circles*.

CERES.

An Open Secret.

I was led to hope from the "words of cheer" which came to the Home Department a few months ago that there might be an awakening among those who value our privileges here which would lead to our obtaining a greater variety of ideas than could be expected from the limited number who usually contribute to it.

It is said that the best of talkers will exhaust their resources in two days having the same audience. I have never heard of the time allotted to writers for a like result; but being apprehensive lest I may reach the limit without being aware of the fact, I think it well that "Ceres" should at least partially withdraw from this field before the necessity for so doing is made apparent.

This may also stimulate others to "say their say," who, with the best of intentions, and often moved to offer their thoughts for our benefit, yet rest upon the certainty that somebody else will fill the space assigned to us, and by procrastination the ideas are lost to themselves and to us.

The most powerful stimulant, however, lies, I think, in the secret hinted at above, which I will now give you:

The passion for newspapers is so universal among our husbands, and is so apt to absorb them to a degree that interferes with our claims upon their attention, that it is by no means uncommon for a woman to wish herself transformed into one of those same documents. Would it not, therefore, be well that you should express yourselves through these columns, which will be sure to arrest his attention? And if, after awhile, he becomes aware of the original source, he will then doubtless be prepared to take it at first hand, supposing of course that you have had something worth the saying. The experiment is at least worth making.

CERES.

The Inestimable Value of Bread Dough.

I have just met with one of those little happenings that are said to belong to the best-regulated families, which may serve the double purpose of establishing the right of my household to being thus classed and widening the capacity of bread dough to meet emergencies.

This propitious accident (being out of bread) occurred this Monday morning; and rather than depend upon soda biscuits for the day, I told my cook to mix her bread as she usually does at night, and a little careful nursing would make it light in time for us to have some of those nice rolls for dinner such as she usually gives us three times a week for breakfast from the regular baking. Thus far the meeting of this emergency is simple enough, but my husband's home-coming necessitates a late dinner, therefore a luncheon must be provided for, and this led to the development of what we will call "Farmers' Muffins." The cook being otherwise engaged, I interviewed the batch of bread dough and found it apparently about half light, at least not light enough to put in the oven in any shape. It occurred to me to try a little of it rolled thin and cooked on the griddle. I found that it puffed up and became as light as a feather. I then added a small quantity of butter and rolled out sufficient for my purpose, quite thin; cut it with a biscuit-cutter; fried them on the griddle as you do pancakes, first on one side and then the other; and soon there was set before an appreciative family a couple of plates piled with light beauties, such as will henceforth be an institution among those who partook of them.

This, however, is not all I have to say for "bread dough!" A few days ago I stopped for a neighbor to go with me on a friendly errand. Having detained me for a short time, she came with the apology that she was just finishing her luncheon, and brought with her a cup of tea and

piece of coffee cake. It is of this coffee cake I want to tell you, for its excellence demands that its virtues should be more widely known. This, too, had its origin in "bread dough," or rather in the sponge, for it is taken at that stage, and to about one quart of it add two well-beaten eggs, a piece about the size of one of them of butter and a tablespoon of sugar, flour enough to make a very soft dough; roll it quite thin; spread in pans ready for baking; let it stand until as light as light can be; then *knuckle* the top all over, and in the indentations thus made put bits of butter; sprinkle liberally with sugar and lightly with cinnamon. Bake quickly and eat whenever you please, for it is always good even to the last. I find it the best accompaniment to coffee handed round in the evening as we use it. C.

Hospitality.

There are few customs more capable of improvement than our present forms of hospitality. No one really miserly or mean can be hospitable in any sense of the word; but ruling out this class, which we are inclined to hope is a small one in this land of plenty, there is a singular difference of opinion as to the true meaning of a quality which no one is willing to repudiate. Probably the most common idea of it is that of a willingness to confer the privilege of bed and board upon friends and acquaintances, and, by a few of the most benevolent, upon strangers also. From this, as a starting point, people drift in various directions according to their peculiar dispositions. Some delight in lavishing their whole stock of hospitality upon a few favored guests; others in distributing it with a liberal hand among many. Some devote all their energies to the comfort and convenience of their friends; others are absorbed in making as brilliant a display as possible of their own property. Some are hospitable from friendly and generous motives; others use their hospitality as an instrument to gain some ulterior and selfish ends. Some are only hospitable by spasms, centering all such efforts upon large and expensive entertainments; others love to have their houses continually open to the entrance of every friend.

Hospitality, in its best sense, comprises two distinct elements—a generous spirit and a discretion to guide it in its practical exercise. When either of these is absent social life is likely to prove a failure. Generosity is the foundation on which all hospitality must be built. The broader and deeper it is laid, the firmer and more enduring will be the edifice. We must be generous *all through*, not only of our money, but of our time; not only of our property, but of ourselves. Many fail just at this point. They give freely, provide liberally, furnish a bountiful table and a well-ordered house, and are thoroughly hospitable as far as the material wants of their guests are concerned, but they do not sacrifice their own time, or tastes, or desires; they do not study the preferences of their friends and conform to them; they expect them to be happy in the way they mark out, and consider them ungrateful if they are not. True hospitality, however, does not end in costly food or luxurious apartments; it does not even begin there; and as long as we make these things prominent in our minds it cannot flourish. Emerson, in his quaint style, makes the truly hospitable man say: "My house is here in the country for the culture of the country; an eating-house and sleeping-house for travelers it shall be; but it shall be much more. I pray you, oh excellent wife, not to cumber yourself and me to get a rich dinner for this man or this woman who has alighted at our gate, nor a bed-chamber made ready at too great a cost! These things, if they are curious in, they can get for a dollar at any village. But let this stranger, if he will, in your looks, in your accent and behavior, read your heart and earnestness, your thoughts and will, which he cannot buy at any price, in any village or city, and which he may well travel fifty miles and dine sparely and sleep hard in order to behold. Certainly, let the board be spread, and let the bed be dressed for the travelers; but let not the emphasis of hospitality lie in these things."

It is a real unkindness to a well-disposed visitor to let him feel that he is a burden or expense; and this must be the case when the family arrangements are displaced, when extra dishes and service are brought into use, and especially when the time and thoughts of the hostess are painfully engrossed with these unusual efforts. True hospitality is far better shown by the hearty welcome to the simple every-day life of the family than by any costly outlay or complicated arrangements, which must create the suggestion, at least in the mind of the guest, that his departure will induce a certain sense of relief. Much of the enjoyment of visiting consists in the change of scene, habits and surroundings. The monotony of home-life is broken up, and the alteration is thoroughly enjoyable. What seems so dull and prosaic to the host and hostess has all the charm of novelty to the guest, and a quick and delicate insight will permit him this quiet gratification unmolested. To discover the preferences of a guest, and to minister to them without fuss or noise, is an act well worthy of cultivation. Children may be trained to do this at a very early age. We have seen the pleasure of a whole company of merry children destroyed by the eager and unconscious selfishness of the little hostess, who was determined that her friends should not be made happy in any way but her own; and we have also seen a child who exercised as truly refined and delicate a hospitality in this respect as any lady could exhibit.

True hospitality, however, is not confined to the duties of a host. It enters into every relation of life, and is one of the best promoters of real liberty. It is opposed to all narrowness and bigotry, to all vanity and conceit, to all superciliousness and contempt. We can be hospitable to thoughts and feelings, welcoming them heartily, though they differ from our own, and seeking for the germs of truth from which they spring. Especially can we be hospitable in giving to all the best that is in us, as they need it, whether of time, talents, sympathy or friendship, and in recognizing and welcoming all the goodness, truth and beauty that comes to us from every source.—*Philadelphia Public Ledger.*

Pickles.

As this is the season when nearly every housekeeper is engaged in making pickles for winter use, we give a number of selected receipts:

CUCUMBER CATSUP.—One dozen of large green cucumbers, (grated,) 1 pint of grated onions and 1 pint of grated horse-radish. Put in a jar and season with cloves and pepper; scald vinegar and pour on hot.

GREEN TOMATO PICKLES.—One peck of green tomatoes, 1 cupful of sugar, 1 tablespoonful of cinnamon, 1 of cloves, 1 of allspice, and 1 of white mustard-seed, all ground. Lay the tomatoes, sliced, with a little salt between the layers, over night; then drain off the water, cover with vinegar, add spices and sugar, and boil a few minutes, stirring to prevent burning.

HIGDUM.—One peck of green tomatoes and ½ pint of salt; cover with water and let them stand 24 hours; then drain. Add 12 green peppers, 12 onions (if you choose) and 1 small head of cabbage, and chop the whole; scald in weak vinegar and drain that off; then add 1 pint of molasses, ground cloves, allspice and grated horse-radish; mix, put in a jar, cover with vinegar, and put 1 pound of brown sugar on the top.

GRAPE CATSUP.—Five pounds fruit, 3 pounds of coffee sugar, 1 pint of vinegar, 1 tablespoonful of cinnamon, 1 of allspice, 1 of black pepper, ½ of cloves, all ground, and ½ of salt. Pulp the grapes and boil the skins in clear water until tender; boil the pulps separately, and strain to remove the seeds. Mix your spices in a little cold vinegar; put all together, and boil about five minutes. This is excellent. The receipt will answer for any sour fruit.

PICKLED SEED CUCUMBERS.—Pare ripe cucumbers, take out the seeds, wash in cold water and wipe dry with a cloth. Cut in strips and pour cold vinegar over them. Let them stand 24 hours. If the vinegar is weak, pour away part and add new. To 1 quart of vinegar add 1½ pounds of sugar, ½ ounce of cinnamon buds, and the cucumbers; boil until the cucumbers look clean. After a few days they will be ready for use, and are excellent.

CHOW-CHOW.—One quart of small cucumbers, 1 pint of onions, 1 quart of green tomatoes sliced, 1 cauliflower cut in strips, 3 red peppers sliced; scald in salt and water. After draining, pour over it hot vinegar and let it stand two or three days; then drain off the old vinegar.—Take 1 package of English mustard, 1 quart of vinegar, 1½ cupfuls of brown sugar and ½ cupful of flour; boil the vinegar; mix up the other ingredients in a little cold vinegar, and pour into the hot; let it boil up, and pour (while hot) over the pickles.

HOWARD COUNTY GRANGE held a public meeting and pic-nic on August 24, which was quite largely attended. Addresses were made by Prof. J. D. Warfield, Sebastian Brown, H O. Devries, W. M. Maryland State Grange, and Wm. B. Sands, editor of the *American Farmer*.

Sugar-Beet Culture in Maryland.

The *Ægis* says: "Mr. R. B. McCoy and other farmers in the neighborhood of Broad Creek, Harford county, are experimenting again this year in raising sugar-beets. Mr. McCoy has shown us two beets from his patch of two acres. One of them weighed two and a-half pounds and the other one pound. The larger beet was grown on a portion of the patch where the plants were two feet apart; the other where they were eight inches apart each way. Mr. McCoy thinks the latter distance is the proper one to secure the largest yield and best beets. He furnishes the following estimate in relation to the cultivation of beets for sugar:

"The beets should be planted eight inches apart each way. Of course this will require hand culture, but the cost of cultivating an acre will not exceed $25. The distance named will allow 64 square inches for each beet. There are 6,272,640 square inches in one acre, which would give 98,010 beets to the acre. With a suitable season and proper cultivation the beets can be made to weigh one pound and a-half each. The produce of one acre would therefore be 147,015 pounds, or 65 tons per acre. The price offered by the Wilmington Sugar-Beet Company for the beets delivered on the cars is $5 per ton. Thus each acre could be made to yield the sum of $325."

The profit of beet culture, Mr. McCoy says, depends upon the proximity of the grower to a shipping point. He would not advise any one to embark in the business unless he can haul at least two loads a day. Mr. McCoy expects to raise at least 20 tons to the acre, but he thinks his crop has not been planted thick enough on the ground. He recommends the sowing of a sufficient amount of seed to ensure a stand of beets eight inches apart. The varieties grown by him this year are white Silesia and purple sugar. The seed were imported by the Patent Office from Germany, and are recommended as the best. Besides Mr. McCoy, Messrs. Robert Love and James Whiteford, of Broad Creek, have each planted small crops, by way of experiment. Several farmers in the neighborhood of Havre de Grace, including Messrs. J. Henry Greenway and Ney Carroll, have also crops of sugar-beets under cultivation. The latter planted four acres.

The difficulty in the way of success is the expense of getting the beets to the factories, the nearest one being that of Wilmington, Del. It is believed that the results this year will demonstrate that the business will pay, and it is thought that capital can be raised to establish a beet-sugar factory at Havre de Grace. The lands about Havre de Grace and through the Neck, in the lower part of Harford, are admirably adapted to growing large crops of beets of the highest sugar-producing qualities; and with the advantage of proximity to the railroad leading to Havre de Grace, a factory there could be abundantly supplied with the raw material. If the estimate made by Mr. McCoy can be even approximated, beet-sugar culture would appear to offer, in the Necks at least, more remunerative results than corn.

The American Farmer.

PUBLISHED ON THE FIRST OF EVERY MONTH

By SAML. SANDS & SON,

At 128 W. Baltimore Street, (sign of the Golden Plow,) Baltimore, Md.

Wm. B. Sands, Proprietor.

Saml. Sands, Wm. B. Sands, } Editors and Publishers.

SUBSCRIPTION, $1.50 a year, in advance. Three copies will be sent for $4, and any person sending five names and $5 will receive an extra copy *free*.

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Transient Advertisements payable in advance—all others quarterly.
Advertisements should reach us by the 27th of the month, to secure insertion in the succeeding issue.

BALTIMORE, SEPTEMBER 1, 1880.

The Baltimore County Fair.

From the indications, this will prove, with fine weather, a very creditable display of the products and farm stock of the county, and it is probable that other parts of the State will be represented by exhibitors.

A number of entries of Jersey cattle have been made; and as these abound in this vicinity, it is thought they will be at this and succeeding fairs a conspicuous feature. Arrangements have been made for a public sale of such animals as their owners may wish to dispose of, and this provision it is believed will be so extended as to bring hereafter from abroad numerous purchasers for these cattle.

The space engaged for implements and machinery indicates a large show in that department. The poultry display is expected to be handsome and large, and so are the classes of sheep and swine.

A very promising show of horses and other cattle besides Jerseys is also promised, and a very large collection of vegetables, fruits, farm grains and roots, &c., and a great variety of the specimens of the skill and taste of the ladies of the county.

A number of novel features have been introduced, which will add to the attractions of the fair. There will be plowing matches, trials of speed, tests of equestrian skill, a competition in horse-shoeing, and, for the benefit of the young folks, some amusing diversions.

It is the design of the management to make the fair not only a cattle show, but a place for the annual assembling of the farmers of the county and their families for business and social meetings, where opportunities will be afforded for the purchase of implements and fertilizers, seeds, farm stock, &c., and where harmless and entertaining amusements will give to the occasion the features of a holiday-making for the people.

These things will not be allowed to detract from the strictly agricultural features. As great care as possible has been exercised in selecting judges, and it is hoped that the system of open awards made in the show-rings, in the presence of all interested, will serve in no small degree as an educational measure.

The judges, as a rule, have been selected from beyond the county, and are men known to possess experience and skill in their several specialties. All the judging will be done by numbers, so that the awarding committees will not know to whom the animals or articles they are examining belong.

We hope the readers of the *Farmer* outside of Baltimore county, who are conveniently enough located, will, many of them, attend its fair. They will find, as we believe, much to interest and something probably to instruct.

The Southern Planter

This journal, which was compelled by unfortunate circumstances to suspend for a few months its regular issues, has been purchased by Mr. Ralfe S. Saunders and resumed publication. Prof. Ellzey continues to edit the live-stock department, and others of the old writers will continue their contributions. Mr. Saunders is an experienced newspaper man, and promises to make the *Planter* a success under his energetic management.

Contents of September No.

Baltimore Markets—September 1.

Breadstuffs.—*Flour.*—Market easier, and prices declining. We quote: Howard Street Super $2.75@$3.50; do. do. Extra $3.75@4.50; do. do. Family $4.75@$5.50; Western Super $2.75@3.50; do. Extra $3.75@4.50; do. Family $4.75@5.50; City Mills Super $2.75@3.25; do. do. Extra $3.75@4.25; do. do. Rio Brands Extra $5.75; Winter Wheat Patent $5.75@6.50; Spring Wheat Family $5.25@5.75; Minnesota Patent $6.75@7.50; Fancy brands $6.50; Fine $2.50; Rye Flour $4.75@5.

Wheat.—Sluggish and inactive. Western active. We quote No. 2 red, cash, $1.03¼@1.03¾; September delivery $1.03⅛@1.03¾; October delivery $1.05⅛@1.05¾; November delivery $1.06⅞@1.07; Southern Fultz $1@$1.03; long-berry $1.04@1.10. The exports of wheat from this port for August were the largest for any month in the history of the port, amounting to 6,377,289 bus., and the receipts for the month aggregate 6,837,690 bus.

Corn.—Western active and firm. Southern dull in absence of receipts. We quote: Western mixed, cash, 51¼ cts.; do. do. September 51¼ cts.; do. do. October 52⅛@52¾ cts.; do. steamer, cash, 50 cts.; Southern white 53 cts.; do. yellow 51¼ cts.

Oats.—Are firm and in good demand, prices ruling higher. We quote: Western mixed, new, 37@38 cts.; do. bright do. 39@40 cts.; Southern do. 36@40 cts.

Rye.—We quote good to prime at 90@92 cts. ₩ bus., with the market firm.

Mill Feed.—We quote City at $16.50 for Middlings, and $17 for Brownstuff, and Western bran at $15.50@16 ₩ ton, with the market firm.

Hay and Straw.—Hay arriving quite freely, and prices lower. Straw in light supply and steady. We quote: Cecil County Timothy, new, $22; Md. and Pa. do. do. $19@21; Western Hay, old, $20@21; Mixed do., new, $17.50@18.50; Clover do. $15@16; Wheat Straw $8@$9; Oat do. $10@11; Rye do., new, $15.

Butter.—Receipts very light, and the market firm in tone, with the demand active. We quote: Western, choice fresh tubs, 17@19; do. good to prime 14@16; New York State, choice, 24@25; Creamery, choice, 26@27; Nearby receipts 14@16.

Cheese.—Receipts fair, the demand good, and the market firm. We quote: New York State, new, choice 12½@13; do. good to prime 11¾@12; Western new choice 11¾@12; do. good to prime 10½@11.

Eggs.—We quote fresh at 17@18 cts. ₩ doz. for both Western and near-by.

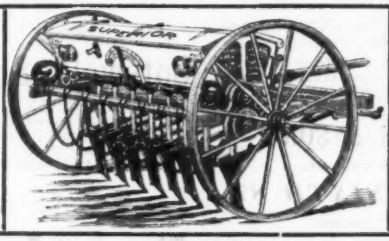
Poultry.—Chickens we still quote at 10@11 cts. for young, and 8 cts. for old ₩ lb., with the receipts and demand fair.

Cotton.—Receipts at the ports are increasing rapidly, which indicates that the new crop is coming forward freely, but the stock here is very light, and for spots the market is firm. We quote as follows, viz: Middling 11⅞@12; Low Middlings 11¼; Good Ordinary 10¼@10⅝.

The KING of Grain Drills!

The "Superior"

Grain



Drill.

The Only Perfectly Adjustable Force-Feed Drill in the Market.

NO CHANGE OF GEAR WHEELS.

ABSOLUTELY NO BUNCHING OF THE GRAIN. The change from small to large quantity made instantly, without stopping the team. The speed of the Feed Cups is always the same for large or small quantities, thus insuring regular sowing.

THE DRILL has a continuous wrought-iron cold-rolled Axle, fastened rigidly to the Frame, and it DOES NOT REVOLVE with the wheels, but each wheel revolves independently, thus giving a long steady bearing, and is FAR SUPERIOR to the revolving Axle.

THIS FERTILIZER ATTACHMENT IS UNSURPASSED, and will sow all kinds with the greatest regularity. Our GRASS SEEDER is a Force-Feed and in a moment can be changed to sow either in front or rear of Hoes.

EVERY DRILL FULLY WARRANTED. Send for Circulars and Price-List.

We also keep always on hand a fine line of **CIDER MILLS** and other AGRICULTURAL IMPLEMENTS.

J.C. Durborow & Co.

GENERAL AGENTS,

35 Light Street, BALTIMORE.

WE ALSO MANUFACTURE THE

Superior Super-phosphate

A High-Grade Fertilizer for Wheat and all Grain Crops. Rich in all the essentials required for the PRODUCTION of WHEAT, and sold at a moderate price. Send for Circular and prices.

TO WHEAT GROWERS.

The undersigned, PIONEER in the manufacture of Fertilizers in this city, and ORIGINATOR in 1858 of the Formulas and processes of manufacture of

"Excelsior" and Ammoniated Phosphate,

So well and favorably known by the Agricultural public, relying upon his experience and personal reputation hitherto acquired in the uniform excellence of these Fertilizers, as manufactured by him, continues to offer them to the Farmers and Planters of Maryland and Virginia, with the assurance that the high standard quality of each will be maintained as heretofore.

The above are the most concentrated FERTILIZERS ever offered to the farmers and planters—combining all the stimulating qualities of Peruvian Guano, and the ever-durable fertilizing properties of Bones, in fine, dry powder, prepared expressly for drilling,—it is the universal opinion of the farmers of Maryland and Virginia, after over twenty years experience in the use of the EXCELSIOR manufactured by me, in growing Wheat, that an application of 100 pounds is equal in its effects to 200 pounds of any other Fertilizer or Guano, therefore fully 50 per cent. cheaper.

With my present advantages and superior facilities for manufacturing, I challenge competition with any Fertilizer sold in the United States, in Quality, Mechanical Condition and Price.

By strictly adhering to my Original Formulas, using only the most concentrated materials, and superintending in person their manufacture—as for the past twenty years—

Uniform Quality is Guaranteed.

☞Farmers, to secure the ONLY GENUINE EXCELSIOR and PHOSPHATE, prepared according to my Original Formulas established in 1858, should see that every Bag is branded as above, with the ANALYSIS and MY NAME IN RED LETTERS.

J. Q. A. HOLLOWAY,

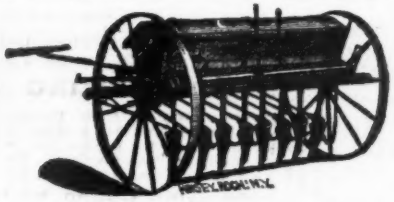
Originator and Manufacturer,

107 McElderry's Wharf, Baltimore, Md.

MONARCH OF THE SEEDING!

THE OLD AND RELIABLE

BICKFORD & HUFFMAN

GRAIN  DRILL.

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Instantly and by a Single Movement changed from a drill especially adapted to seeding the fine heavy grains to one especially adapted to sowing the coarse bulky grains.

THE BONANZA GRASS SEEDER.

The only Seeder readily adjustable to work in front or rear of Tubes, with equal facility for work in either position, securing uniformity and certainty of distribution of all grass seeds, large, small or mixed.

THE FERTILIZER ATTACHMENT,

The fundamental principles of which have been demonstrated by our manufacture of the past quarter of a century, with the improvements of the last year, has proved its eminent superiority over each and every competitor, readily and satisfactorily distributing Fertilizers whose composition or condition rendered their distribution impossible by any other device.

THE COMMON-SENSE SPRING TUBE

Is thoroughly practical in its operation, simple in its construction, possessing all the endurance and wearing quality of the Pin or Peg Tube. Using no gum or rubber in its construction, it is impervious to weather or exposure, and if accidentally broken can be repaired at your homes, saving the cost of transportation and delay.

☞All these Drills are furnished with Neck Yoke, Whiffletrees, Land Measurer and the Davis Patent Tube Shifter, for which an extra charge is made on all other Drills using it.

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64 S. SHARP ST., BALTIMORE, MD.

HENRY P. UNDERHILL,

General Southern Agent.

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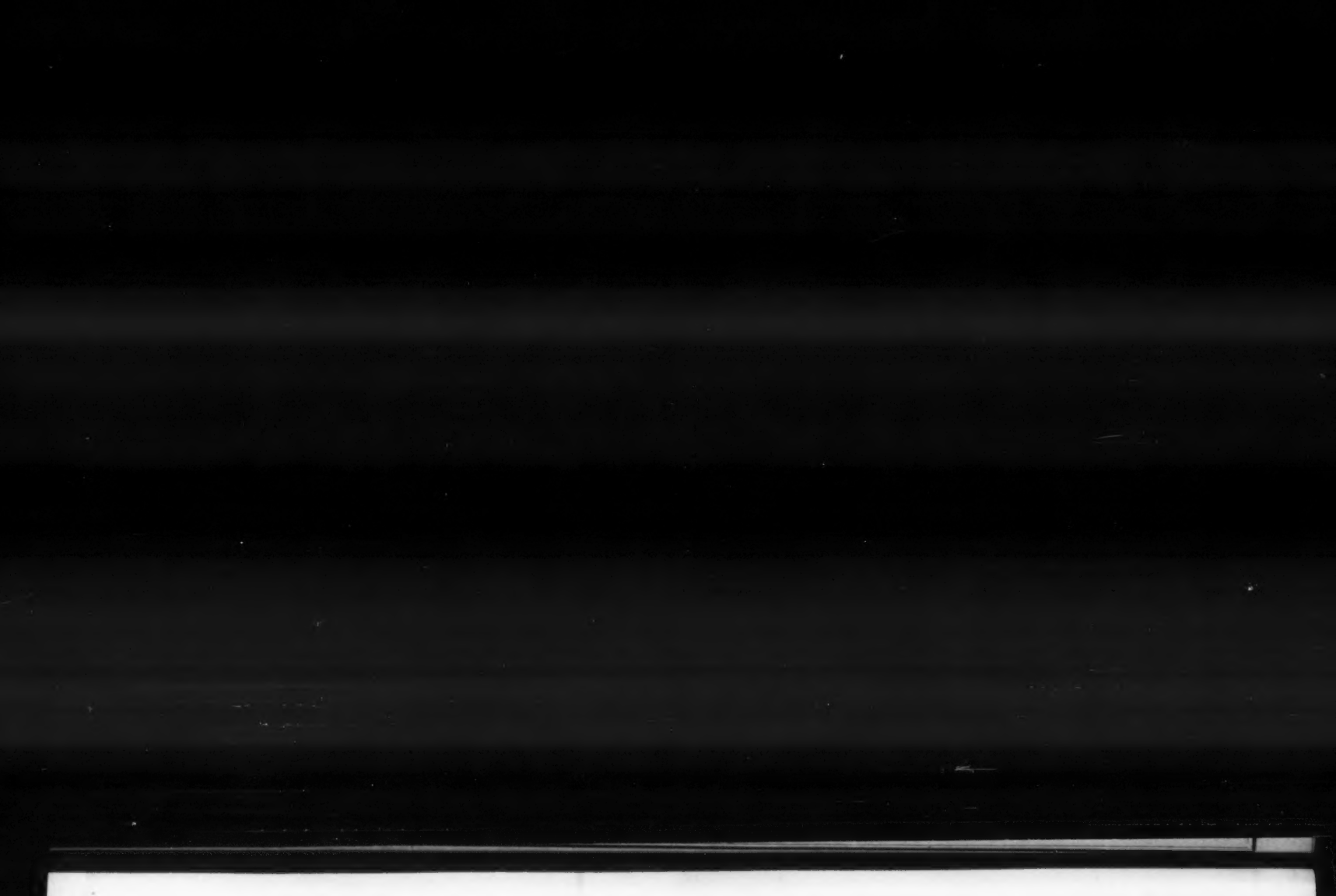

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Chesapeake Chemical Works.

OFFICE, 157 W. Fayette Street. } BALTIMORE. { WORKS, Foot of Leadenhall St.

MANUFACTURERS AND MANIPULATORS OF

PHOSPHATES

We are now offering to the Trade the following WELL-KNOWN BRANDS OF GOODS, which we guarantee fully up to Standard:

SLINGLUFF'S

DISSOLVED GROUND BONE,

Containing 3 per cent. of Ammonia.

SLINGLUFF'S

Dissolved South American Bone Ash

Containing 40 to 44 per cent. Soluble Bone Phosphate.

SLINGLUFF'S

Dissolved South Carolina Phosphate

Containing 28 to 32 per cent. Soluble Bone Phosphate.

To meet the demand for a high-grade Fertilizer, we are offering **SLINGLUFF'S NATIVE SUPER-PHOSPHATE**—prepared entirely from Animal Bone—highly ammoniated.

Also, **SLINGLUFF'S No. 1 AMMONIATED SUPER-PHOSPHATE.** This we can confidently recommend as one of the best fertilizers sold in the market at a low price.

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MANUFACTURERS OF

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Cotton, Tobacco, Corn, Oats, Wheat, &c.

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Where they have introduced the MOST COMPLETE MACHINERY for compounding Concentrated Fertilizers, that their great experience has enabled them to so successfully introduce to the Planters of the Middle and Southern States.

SOLUBLE SEA ISLAND GUANO

So well-known and of UNDOUBTED EXCELLENCE.

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A High-Grade Fertilizer of KNOWN MERIT.

Dissolved Bone Phosphate

Prepared from GROUND ANIMAL BONES.

ACIDULATED SOUTH CAROLINA and NAVASSA PHOSPHATES

AMMONIATED ALKALINE PHOSPHATE,

A complete manure, endorsed by the Patrons, who have used it with great satisfaction for the last 5 years, and is on sale by Grange Agents at Baltimore, Richmond, Norfolk, Petersburg and Alexandria.

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And all Fertilizing Materials in Store and for Sale.

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